

# JOURNAL

OF THE

## AMERICAN VETERINARY MEDICAL ASSOCIATION

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Volume 122

JANUARY 1953

Number 910

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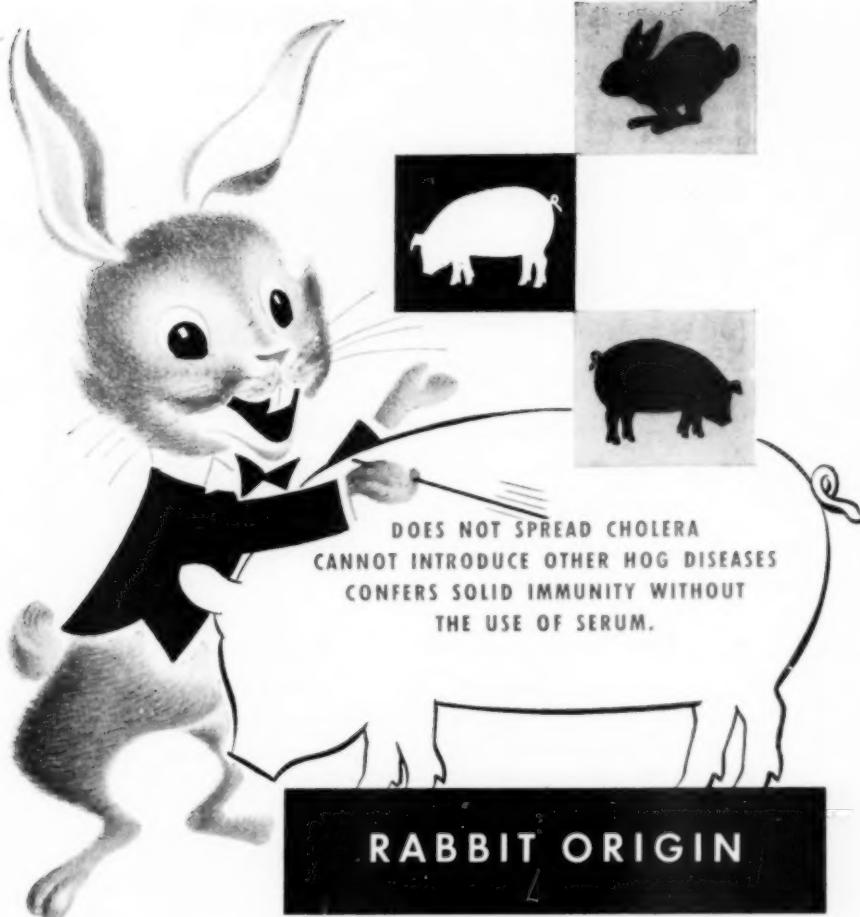
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# AVMA ★ Report

## Veterinary Medical Activities

♦ The Executive Board at its annual winter meeting on Dec. 3-4, 1952, voted unanimously to: (1) support an extension of the doctors' draft law; (2) endeavor to continue the inclusion of veterinarians in the law; and (3) attempt to have the law revised so that the youngest veterinarians without prior military service will be the first called to active duty.

★ ★ ★  
♦ At the same meeting the Executive Board authorized the support of activities designed to prohibit the feeding of uncooked garbage to swine.

★ ★ ★  
♦ Drs. A. R. Miller, H. J. Stafseth, H. E. Kingman, Jr., R. E. Rebrassier, John Scruggs, and R. E. Zwickey met with Drs. J. G. Hardenbergh and C. D. Van Houweling in the central office on November 20 to discuss the wisdom and necessity for formal educational training and requirements for lay food inspectors. Their recommendations were referred to the Council on Education and the Executive Board.

★ ★ ★  
♦ Assistant Executive Secretary C. D. Van Houweling spoke to the Tenth District Veterinary Medical Association in Greenfield, Ind., on November 20, 1952. He showed slides and discussed the profession's total public relations responsibility.

★ ★ ★  
♦ This issue of the JOURNAL contains a review of the film, "Anthrax in Ohio." The AVMA gave financial support to the production of the film. It shows how diseases can be dealt with effectually and how veterinary medical civil defense will operate if rare diseases, or unusual outbreaks of common diseases, occur.

★ ★ ★  
♦ The central office is completing arrangements for a legislative organization of members in all of the states. The plan and purpose is to have a roster of veterinarians who will be able to contact key congressmen immediately when requested to do so. Members who are personally acquainted with U. S. congressmen are urged to notify Dr. C. D. Van Houweling, 600 S. Michigan Ave., Chicago 5, Ill.

★ ★ ★  
♦ President-Elect Brig. Gen. J. A. McCallam is retiring as chief of the Veterinary Division, Office of the Army Surgeon General, Jan. 31, 1953. He will then become the official AVMA representative in Washington, D. C. (see p. 62).

★ ★ ★  
♦ On December 10, Executive Secretary Hardenbergh attended the monthly meeting of the Committee on Local Arrangements for the 1953 AVMA convention scheduled for Toronto, July 20 to 23. For more details about the 1953 convention, including hotel information, see pages 61-62.

★ ★ ★  
♦ Mr. R. G. Rongren, AVMA director of public information, went to Cleveland to arrange for setting up the federal meat inspection exhibit at the eightieth annual meeting of the American Public Health Association, held Oct. 20-24, 1952. Dr. E. W. Burke, inspector in charge of Meat Inspection Service at Cleveland, and his assistant, Dr. F. W. Timm, represented the Meat Inspection Division of the B.A.I., and answered questions from the many delegates who expressed an interest in the work of federal meat inspectors.

★ ★ ★  
♦ The first comprehensive report on the 1952-53 AVMA Research Fund-Raising Campaign appears in this issue. State quotas have been established, based on an average of \$10 from each veterinarian. The report shows the amount contributed and the percentage of the quota attained by each state. An accompanying article also lists the veterinary organizations and women's auxiliaries that have donated to the current campaign.

★ ★ ★  
♦ Dr. Niel W. Pieper of Middletown, Conn., who was elected to the executive committee of the Council on Education at the Atlantic City meeting, was elected as chairman of the Council, to fill a vacancy, at their November 22 meeting.



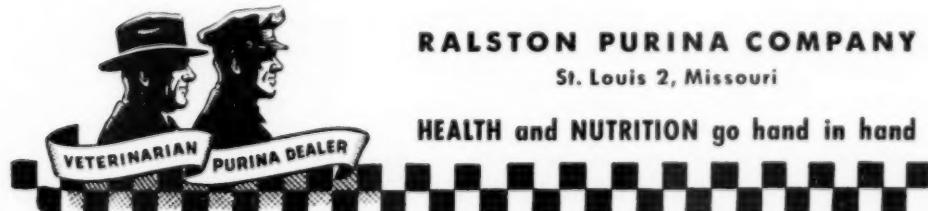
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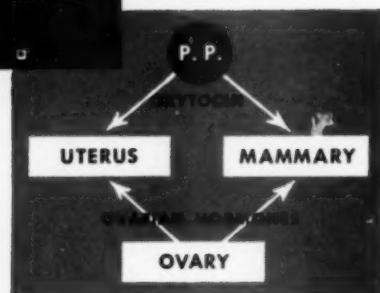
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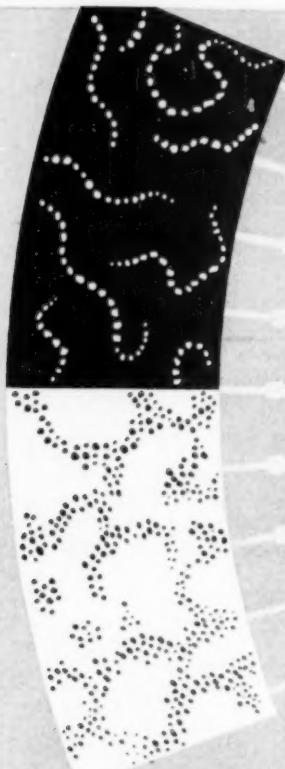
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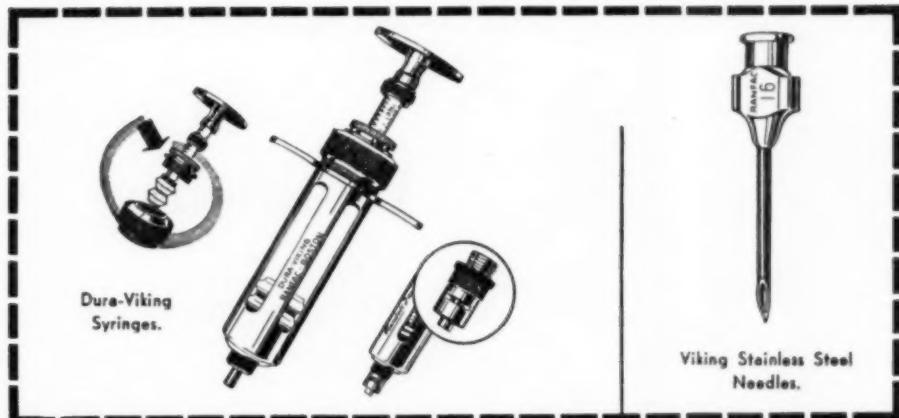
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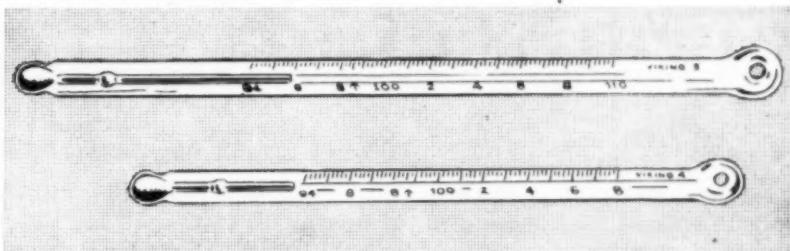
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## Atrophic Rhinitis. I. A Herd Survey

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IN APRIL of 1952, our attention was called to a boar in a herd that had "blown out" from its nose a dark, firm, somewhat purulent appearing clot which was followed by a small but continuous flow of blood from the left nasal opening. A postmortem examination of the head disclosed absence of the entire left turbinate with some purulent material attached to the lateral surface of the nasal wall, a nasal septum that had a semilunar appearance, and a right turbinate that appeared essentially normal, although the surface of the nasal mucous membrane seemed to be excessively moist. A tentative diagnosis of atrophic rhinitis was made at this time.

Three adults and 3 weaner pigs were selected from the herd as atrophic rhinitis suspects and, upon postmortem examination, positive evidence of this disease as described in the literature was seen. It was then decided that a number of animals be selected and killed, from which information could be obtained about this condition.

The factors considered in this survey were: (1) history, which included breeding, vaccinations, and blood serums, with a limited number of lung tissue samples for influenza tests; (2) postmortem examina-

tion, which covered the external appearance of the face and snout, the internal appearance of the structures of the nasal cavity, both gross and microscopic, as well as a bacterial and protozoan examination of the nasal mucosa, and a cursory examination of the body cavities. A total of 75 animals were examined; 16 of these were found dead, and the balance were killed prior to examination. With the exception of the original boar, pigs were selected on the basis of such clinical signs as sneezing, coughing, undersize, and either real or imagined distortion of the snout. The age of the pigs was 1½ months to 15 months, the majority being 3 to 4 months old.

### METHODS

The method of examination consisted of removing the skin over the face and snout, then making 2 transverse cuts with a meat saw, one at a point where the canine tooth is located, and one in line with the inner canthus of each eye. This exposed in cross section the turbinates and nasal septum, as well as the cribriform plate and portions of the frontal and maxillary sinuses. The cartilaginous nasal septum was removed with a knife to further expose the turbinates of the first section. After the first section was removed, material for bacteriological examination was obtained from the second section of the nose by means of a sterile cotton swab inserted into the meatuses. This material was inoculated into serum agar slants, in nutrient broth, and on Sabouraud's medium.

Material for the protozoan examination was obtained by scraping the mucous membrane with a scalpel, suspending the material in physiological salt solution on a glass slide, placing over it a

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coverslip, and examining with low power magnification. Portions of either of the two sections were placed in 10 per cent formalin for histopathological study. The saw was washed in 2 per cent lye solution between preparations for each examination.

The problem of differentiating between normal and abnormal was made difficult by lack of understanding as to what is normal. As we progressed through the group, we considered normalcy to be represented as follows: externally, no distortion of the nose (not associated with breed) and little or no evidence of excessive lacrimation and black staining of the inner canthus of the eyes; internally, the nasal septum should be perpendicular with even surfaces, and with the whorls of the turbinates complete, practically filling up their respective nasal cavities. In the normal, freshly killed animal, the mucous membrane should be purplish red without an excessively moist appearance. However, where to draw the line between normal and abnormal was still puzzling at times.

For purposes of working classification, the entire group was divided into rhinitis positives, negatives, and questionables. Those classified as positive showed considerable gross variation, ranging from either a decrease in size or loss of whorls of one or both turbinates, leaving residual fleshy feeling stumps, to a complete loss without even a residual ridge where the turbinates normally arise. The nasal septums varied from those that were perpendicular with even surfaces, to ones that would be semilunar or bow-shaped, with or without irregular surfaces, encroaching upon (and at the same time flattening) what otherwise would be described as normal-appearing turbinates. The resulting decrease in size and loss of turbinates with or without a change in the nasal septum made for a greatly increased size of the nasal passages. Gross evidence of secondary infection, ranging from excessive clear mucus to caseated material, was seen but not consistently.

The rhinitis negatives followed the lines already described as normal. It was noted, however, in 6 pigs that although the turbinates and septums appeared normal on gross examination there seemed to be an excess of mucus present. An exception was observed in a pig which presented a marked hump and depression just behind the snout, upper incisors decidedly out of line, and with no gross abnormality of the turbinates or septum.

Among the 7 pigs classed as "questionable," there was 1 that fitted the description of "bulb nose" (due to a deep abscess on the left side of the snout) and showed thickened fibrotic turbinates. Three in this group, including the bulb nose pig, did not appear structurally normal, yet could not be classified as either positive or negative for atrophic rhinitis. In addition, there was present a considerable amount of mucopurulent matter in the nasal cavity and sinuses, indicating a definite inflammatory process. Three of these pigs had litter mates that were rhinitis positive.

## RESULTS

A bacteriological examination was made on a total of 55 animals. As would be expected, there was a wide variety of organisms so that our efforts were concentrated on what appeared to be the predominating ones for each pig. Collectively, the predominating organisms were of the genera *Streptococcus*, *Staphylococcus*, and *Corynebacterium*, and there was no apparent consistent difference between animals that were either positive or negative for atrophic rhinitis. It was noted that *Pseudomonas aeruginosa* was isolated on only 7 occasions, 5 of them being in rhinitis-positive pigs, 1 in an animal that was negative, and 1 in an animal classified as questionable. *Erysipelothrix rhusiopathiae* was not found in any of the animals examined. *Pasteurella suis* was recovered from 13 pigs, 5 of which were rhinitis positive, 6 rhinitis negative, and 2 questionable.

Of the pigs examined bacteriologically, on postmortem examination 32 showed lesions of pneumonia, with *P. suis* recovered from the nose of 6, and from 7 whose lungs were normal. Material from 26 pigs was inoculated onto Sabouraud's medium and held for three weeks at room temperature. There was a heavy overgrowth of mold and scattered miscellaneous colonies, with a definite similarity between the pigs classified as either rhinitis positive or negative.

An examination for motile protozoa (*Trichomonas* sp.) was made on 62 pigs and was found in 17 of the animals. Eleven of the 27 atrophic rhinitis-positive pigs had protozoa, whereas it was demonstrated in only 5 of the 32 rhinitis-negative pigs. In the group of questionable pigs, of 3 examined 1 was positive for protozoa and the other 2 were negative. It was noted that, when protozoa were present, there was no difficulty in making a positive finding as there were several to each field examined. It was thought at one time that the protozoa could be anticipated when there was a seemingly excessive clear mucus present, and though this was largely true, plus the fact that many of the pigs also showed a mucopurulent condition, we could not claim consistency for this observation. This was based on the fact that of the 5 animals showing motile protozoa present in the rhinitis-negative group, 3 were essentially normal, with 2 showing what appeared to be excessive mucus. Five others in this

group, showing again what appeared to be excessive mucus, were found negative for motile protozoa.

Thirty-four cases were studied histologically to determine if pathological changes had occurred in the turbinate bones and other related parts of the nasal cavity. Of these 34 cases, 16 were considered normal histologically, 2 were unsatisfactory because the specimens did not include representative tissue, and the remaining 16 cases showed pathological changes that ranged from slight to extensive. The minor pathological changes included slight to moderate congestion of the vessels in the lamina propria, excessive numbers of goblet cells, the formation of large vacuolated spaces in the respiratory epithelium, and abnormally rapid breakdown and regeneration of the bony trabeculae. The more striking pathological changes were atrophy of the turbinates and replacement fibrosis, extreme dilation and congestion of all the vessels, extensive necrosis of the mucosa of the meatus and turbinates, and mobilization of large numbers of polymorphonuclear leukocytes and macrophages.

There were 4 cases, 2 of which were positive, 1 questionable, and 1 negative for atrophic rhinitis, that showed extreme congestion, necrosis, and some fibrous tissue replacement of the bone; it was considered that these 4 cases represented secondary infections and were not necessarily related etiologically to atrophic rhinitis. Two other cases, a positive and a negative, showed advanced fibrous tissue replacement of the turbinates. All of the other cases were negative for any slight or moderate invasion of polymorphonuclear leukocytes or macrophages to indicate a progressive inflammatory condition that is usually associated with pyogenic bacterial infections. In other words, there was no evidence of an incipient bacterial invasion as represented by inflammatory cell mobilization or of a slight bacterial invasion that could be considered related to the 6 cases showing the more marked pathological changes.

In 2 of the cases showing a heavy protozoan population, a thorough search was made of the sections using iron hematoxylin, Schiff reagent, Gomori's methenamine silver method, Giemsa, and phosphotungstic hematoxylin stains in addition to the routine hematoxylin and eosin stain, but protozoa could not be demonstrated in, or ad-

jacent to, the epithelium or in other parts of the tissue that suggested a thorough study.

There was not a sufficient number of adult animals represented in this survey to ascertain whether there was a hereditary influence present. When more information becomes available on this herd, this factor will be explored.

One aspect of this disease, that of the failure of pigs to make satisfactory gains, so far has not been observed. However, more accurate information along this line should become available by virtue of a large number of pigs presently being fattened for slaughter.

The swine ration of the entire herd contained aurafax at the rate of 6 lb. per ton of feed, but whether this is a contributing factor in atrophic rhinitis, by changing the bacterial flora of the mucous membrane lining the structures within the nose and sinuses of the head, remains to be demonstrated.

From the standpoint of vaccination history, all pigs in this herd were immunized against hog cholera with serum and virus, and against swine erysipelas with serum and live culture. The pigs are vaccinated for hog cholera at 6 to 7 weeks of age, and for swine erysipelas three to five days after birth.

While making the gross examinations on this series of pigs, several aspects of atrophic rhinitis suggested themselves. Seemingly, a decrease in size and loss of turbinates, with deviation of the septum, can be seen without visible evidence of active infection and, conversely, visible evidence of infection can be present without noticeable changes of the septum and turbinates. In the first instance, this would seem most unusual, for with the breakdown of the normal physiological barrier, an infective process would meet with little opposition. Actually, this was demonstrated in the majority of positive rhinitis pigs, in which there was considerable gross evidence of a secondary infection. Nevertheless, this does not rule out the possibility of a congenital anomaly which would predispose the animal to the secondary infective process.

In the second instance, the presence of visible evidence of infection without noticeable anatomical change could be, until proved otherwise, a simple type of rhinitis or sinusitis and not necessarily associated

with atrophic rhinitis. However, circumstantial evidence does not support this idea, since some pigs that were called negative and questionable were in litters containing positive animals. Thus, it would appear that we were seeing either an earlier stage of atrophic rhinitis or an arrested case. When examining these abnormal conditions within the nose, the question arises whether this is the result of a degenerative process (atrophy), or a loss in the generative process early in life. In other words, if the cause is of external origin (protozoan, viral, or bacterial), does it invade the tissues causing death of the previously normal parts, thus producing a degenerative change which may be assisted by secondary infection, or does it affect tissues so that their normal growth is inhibited or stopped entirely?

#### SUMMARY

Summary of pertinent information taken from this survey is as follows:

- 1) Of 75 pigs examined, 59 were killed and 16 were found dead.
- 2) Thirty-six (48%) were diagnosed as affected with atrophic rhinitis; 32 (42.6%) were diagnosed as not affected with atrophic rhinitis; 7 (9.3%) were diagnosed as questionable.
- 3) Eleven (30.5%) of the 36 affected pigs showed external physical signs.
- 4) Seventeen (47.2%) of the 36 affected pigs had one or both turbinates missing; 19 (52.7%) of the 36 affected pigs had small or residual turbinates.
- 5) Twenty (55.5%) of the 36 affected pigs had gross evidence of secondary infection; 16 (44.4%) of the 36 affected pigs did not have gross evidence of secondary infection; 8 (25%) of the 32 nonaffected pigs had gross evidence of secondary infection.
- 6) Sixty-two pigs were examined for trichomonads: 17 (27.4%) of the pigs were positive for trichomonads; 11 (40.7%) of 27 atrophic rhinitis pigs had trichomonads; 5 (15.6%) of 32 nonaffected pigs with atrophic rhinitis had trichomonads; 1 of 3 questionable atrophic rhinitis pigs had trichomonads.
- 7) The lungs of 71 pigs were examined: 39 (40.8%) had gross evidence of pneumonia; 20 (60%) of 33 atrophic rhinitis pigs had pneumonia; 16 (50%) of 32 pigs not affected with atrophic rhinitis had pneumonia; 3 (50%) of 6 questionable pigs had pneumonia.
- 8) There was no evidence of any specific bacteria as a causative agent, with *Pseudomonas aeruginosa* and *Erysipelothrix rhusiopathiae* ruled out.
- 9) Attempted influenza virus isolations were made, with negative results from the lung tissue of 4 pigs affected with atrophic rhinitis.<sup>1</sup>
- 10) Results based on a report by Dr. Young<sup>2</sup> showed that swine influenza did not appear to be a factor in atrophic rhinitis in this herd as judged by the following: 9 (25%) of 36 pigs tested had titers of 1:16 and upward; 4 (28.5%) of 14 pigs affected with atrophic rhinitis had titers of 1:16 and upward; 5 (22.7%) of 22 pigs not affected with atrophic rhinitis had titers of 1:16 and upward.
- 11) Pneumonia associated with a swine influenza in this herd as based on Dr. Young's report did not show a relationship: 5 (27.7%) of 18 pigs showing pneumonia had titers of 1:16 and upward; 4 (22.2%) of 18 pigs with no pneumonia had titers of 1:16 and upward.

<sup>1</sup>Dr. Dorland Davis, National Institutes of Health, Bethesda, Md.

<sup>2</sup>Dr. George A. Young, Jr., Hormel Institute, University of Minnesota, Austin, Minn.

#### Atrophic Rhinitis in Pigs

Streptomycin seemed able to prevent the infection of pigs with atrophic rhinitis in a series of experiments in Canada. Baby pigs were removed from their mothers when they were 4 or 5 days old and were given nasal inoculations, for five days, with suspensions of nasal scrapings from infected pigs. Seven days after the first nasal inoculation, some of the pigs were treated by instilling antibiotics into each nostril daily for five days. Two treated with penicillin developed the disease. Only 1 of the 14 pigs treated with streptomycin showed any evidence of infection. Ten of 12 control pigs developed typical atrophic rhinitis.—*Canad. J. Comp. Med., Sept., 1952.*

*Trypanosoma Equiperdum in Austria.*—Dourine first occurred in Austria in 1946. Although it became widespread, it was stamped out by 1950. Data concerning 579 infected horses were recorded. Treatment with neosalvarsan and with mapharsen, a derivative of trivalent arsenic, gave good results.—*Vet. Bull., Aug., 1952.*

## Atrophic Rhinitis. II. The Rhinoscopic Examination of Swine as a Means of Diagnosing Atrophic Rhinitis

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A HERD diagnosis of atrophic rhinitis can be made on the basis of clinical symptoms and postmortem findings. However, the status of all the individual animals in a herd can not with practicality be determined by this means. We have also found upon observation that a large percentage of the individuals affected with atrophic rhinitis do not have positive external indications of this condition prior to postmortem. Therefore, the possibility of illuminating the nasal passages to determine their physical character, and thus differentiate between the affected and nonaffected animals, was considered. For this purpose, an otoscope equipped with a closed head, plus a variety of speculums, was obtained. One requiring size C batteries was selected on the basis of ease of handling.

First attempts to examine the nasal passages were discouraging due to the inability of the men to hold the head steady, which did not allow the viewer sufficient time to make a satisfactory observation. One of the employees<sup>1</sup> suggested the use of a castrating trough to restrain the smaller pigs (fig. 1). As larger pigs had to be examined, another means of restraint was necessary. The herdsman<sup>2</sup> suggested the use of a breeding chute equipped with a yoke (stanchion) in place of the gate (fig. 2). This stanchion was adaptable to pigs of various sizes and, due to the nature of the head and neck of a pig, it was made wider at the bottom than the top. The stanchion end of the chute was rested on a seat bench which facilitated the ease of examination. These two forms of restraint were successful, and a clear view of the anterior portions of the nasal passages was obtained, despite the fact that an

occasional pig would struggle causing some degree of movement of the snout.

General anesthesia was used successfully



Fig. 1—The castrating trough for restraint.

on 5 pigs to make the examination. The anesthesia used was "A.C.E. mixture" consisting of 1 part (70%) alcohol, 2 parts chloroform, and 3 parts ether. This method could be used when only a few animals were to be examined, in the absence of more suitable restraint.

In making the examination, the size of the speculum depended upon the size of the anterior nares. For pigs of weaner age and younger, the standard short plastic speculum of either 3.5 mm. or 5.0 mm. in diameter was satisfactory. A metal "veterinary speculum" 6.5 mm. by 6.0 mm. with a beveled edge to prevent undue trauma was adaptable to the larger animals.

To insert the speculum, it was necessary to project it toward the nasal septum, and then inward past what corresponds in the horse to the lamina of the alar cartilage. By applying lateral pressure with the speculum, the cartilage was moved aside allowing the structures of the nasal passages to be seen. A pan of disinfectant solution for immersing the end of the speculum and a gauze cloth moistened with the disinfectant

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<sup>1</sup>Otha Knox, agricultural aid, Animal Husbandry Division, Agricultural Research Center, Beltsville, Md.

<sup>2</sup>James X. King, animal husbandman, Animal Husbandry Division, Agricultural Research Center, Beltsville, Md.

to wipe the speculum were used between each examination. It was also necessary to use a piece of dry gauze to wipe the lens and light bulb when they became "fogged" with moisture or condensation, or splattered with droplets of blood and mucus. This was an annoyance at times, particularly when a pig would sneeze repeatedly, spraying the lens as well as the viewer. Good illumination was necessary, and because the batteries weakened rapidly from continuous use, they had to be watched carefully in order to make replacement.

In the normal animal, the mucous membrane lining of the nasal passages appeared as a pink, slightly moist, somewhat glistening surface. The dorsal turbinate could be seen in the form of a triangle

that only the anterior portions of the nasal cavity can be readily seen and that this is from a slightly angular perspective.

Pigs affected with atrophic rhinitis usually presented changes in the physical structures within the nose which were easily recognized. These changes consisted of either the absence of one or both turbinates, or a varying decrease in the size of one or both turbinates, which were classified as shrunken or residual depending upon their relative size. The former is self-explanatory in that no apparent turbinate structure was present, while the latter was determined by estimating the relative decrease in size of the turbinates with a corresponding increase in the size of the common and medial meatus. In some cases, it could not be determined consistently whether the



Fig. 2—A breeding chute for restraint, equipped with a stanchion rather than a gate.

with a rounded apex projecting downward and inward. Below this, a portion of the irregular, tube-shaped ventral turbinate could be seen extending posteriorly. The dorsal and ventral turbinates were separated by a narrow meatus, and a bead of mucus was occasionally seen attached to the surfaces. Between the nasal septum and both turbinates was the wider common meatus, which at times also showed a bead of mucus adhering to the surfaces connecting the ventral turbinate with the septum. In viewing the above, it must be realized

turbinates were shrunken or normal. This was due to a lack of an over-all perspective which did not allow the entire relationship of the parts to be seen.

In the normal or unaffected animal, it was unusual to find a small trace of food or fecal stained mucus just within the anterior nares. However, in the markedly affected pigs, varying amounts of this material were usually seen in addition to mucopurulent debris. In using this instrument, we found it was well to remember

that what is seen is magnified and that one could easily be confused as to the amount and character of the foreign matter on the surface of the mucous membrane.

It is our judgment that this method offers a practical means by which the diagnosis of atrophic rhinitis can be established in the individual animal.

### Atrophic Rhinitis. III. The Evaluation of the Rhinoscopic Examination for its Diagnosis

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*Washington, D. C., and Beltsville, Maryland*

IN A PRECEDING paper (see pp. 1-7) the technique of the rhinoscopic examination was presented as a means of diagnosing atrophic rhinitis in the individual animal. Herein lies the potential value of such an examination, for with the elimination of known affected animals from a herd, a real attempt could be made to see if this disease could be controlled on a herd basis. This examination would also permit making replacements to the herd with considerable more confidence than could be done at the present time. It is the purpose of this paper to evaluate this rhinoscopic examination for the diagnosis of atrophic rhinitis.

Pigs for examination were available from premises on which atrophic rhinitis was present and were divided into two working groups. The first group consisted of 51 pigs culled out of the herd, following our first effort to apply this method of examination, and 35 miscellaneous ones, including a few adult sows and boars. The second group of pigs consisted of 162 animals that were sent to the abattoir after reaching a weight of over 200 lb. With the exception of the few mature sows and boars, the pigs were 4 to 6 months of age.

The procedure followed in collecting our data on this series of 248 pigs consisted of: (1) observations of the external appearance of the nose and face; (2) the rhinoscopic examination wherein the appearances of the structures and surfaces within each nasal passage were noted and a diagnosis made following this examination; and (3) the postmortem examination of the structures and surfaces within each nasal pas-

sage to make a second diagnosis. Pigs of the first group were examined in entirety on the same day, whereas pigs of the second group were killed the day after the rhinoscopic examination. A comparison between each separate series of notations and the resultant diagnoses formed the basis by which we evaluated the accuracy of the rhinoscopic examination (tables 1 and 2).

TABLE 1—Comparison Between the Rhinoscopic and Postmortem Examination

Rhinoscopic	Postmortem	Difference	Error(%)
86 Positive	72 Positive	14	16.27
132 Negative	110 Negative	22	16.66
30 Questionable	8 Questionable	22	73.33
248 Total	190	58	23.38%

A comparison between the diagnoses following the rhinoscopic and postmortem examination definitely showed that a majority of pigs affected with atrophic rhinitis can be picked out of a large group of pigs. Those pigs that showed definite changes within the nose consisting of (1) a loss of one or both turbinates, (2) one or both of a size as to be called residuals, and (3) definitely shrunken, but not markedly so, can be diagnosed with confidence by this method. Additional abnormalities such as a markedly bowed septum can sometimes be noted but not with consistency; dirty, greenish yellow mucopurulent matter can be easily seen, but the amount can not always be readily estimated; clear, white,

TABLE 2—Breakdown of Errors Made on the Rhinoscopic Examination

14 positive, of which 6 were negative and 8 questionable on postmortem
22 negative, of which 9 were positive and 13 questionable on postmortem
22 questionable, of which 9 were positive and 13 negative on postmortem

Drs. Shuman (Washington, D. C.) and Earl (Beltsville, Md.) are from the Pathological Division, Bureau of Animal Industry.

purulent mucus when present had a refractive appearance on rhinoscopic examination like that seen through a moonstone; and dust and fecal stained mucus can easily be mistaken for small necrotic areas.

The value of this examination was enhanced by reason of the fact that of all pigs found positive for atrophic rhinitis in this series on postmortem examination, there were only 14 that showed deviations of the external appearance of the face and snout suggestive of atrophic rhinitis. Of these 14, 13 were diagnosed positive, with 1 negative on both rhinoscopic and postmortem examination.

It can also be seen from the above results that this method of examination is not without a margin or error. However, the gross errors were due to the inability to see in entirety and in true perspective the structures within the nasal passages. Illustrative of this were instances of pigs that were diagnosed as negative on rhinoscopic examination, which on postmortem examination showed essentially normal turbinates anteriorly, but as they progressed posteriorly one or both sides were of such size as to be called shrunken, thereby changing the diagnosis to positive. Likewise other pigs showed, on postmortem examination, normal-appearing dorsal turbinates, with normal-appearing upper whorls of the ventral turbinates, but with one or both lower whorls of the ventral turbinates either shrunken or missing. Variations of this type that would cause an error in diagnosis were found in those animals that showed either atypically formed incomplete or slightly shrunken turbinates, yet by virtue of the fact that they were in close proximity to a slightly bowed septum, or dorsal turbinate, their true state was masked on the rhinoscopic examination. The most troublesome cases, and those which contributed most to our errors in diagnosis, were the "questionable" diagnoses, either on rhinoscopic or postmortem examination. It was within this group that we found our real limitations, inasmuch as the degree, or apparent degree, of change of the turbinates could not consistently be determined. Some of these pigs which on rhinoscopic examination appeared either negative or were judged questionable because the space between the dorsal and ventral turbinates seemed a bit wider than was to be expected showed, on postmortem

examination, either structural changes that were indefinite, and would have to be classified as "questionable," or were actually normal.

This series of pigs brought out more clearly the impression that there are many pigs in which either the disease process becomes arrested, or there is a partial failure in the development of portions of the structures within the nose. Examples of this were demonstrated in animals showing slightly shrunken and pinched-in turbinates in the anterior portion of the nose, and essentially normal turbinates posteriorly; others showed completeness of the whorls of the turbinates, yet they were somewhat soft at the extremities, with little cartilaginous and calcified parts, and in this there was a marked difference in degrees from one side to the other. There were some that were essentially complete, but the over-all size was insufficient to fill up their respective nasal cavities to a degree that could be considered normal; the fact that many irregularities of the nasal septum were seen, being bowed to various degrees and many showing small longitudinal facets, but without visible affection of the turbinates other than one side being distorted, flattened, and the other side showing in some instances definite compensatory hypertrophy, further illustrates that the disease process occurred early in the life of the pigs.

#### CONCLUSION

It can rightfully be questioned whether atrophic rhinitis can be eliminated, or even controlled, in a herd with the help of this rhinoscopic examination, based on an accuracy of over 75 per cent. This, however, remains to be seen and will be attempted in a herd that is available for study. It can be said that this diagnostic method does offer veterinarians a means of markedly reducing the number of affected animals on premises, especially among the breeding herd, and assist in the selection of replacements.

If in doubt about rhinitis in swine, put them on 1 gr. of sulfapyridine per pound per day for five days. If they recover, it was probably "bulldose;" if not, it is probably atrophic rhinitis.—W. A. Aitken, D.V.M., Chicago.

## Federal Drug Regulations as They Apply to Veterinarians

J. H. COLLINS, D.V.M.

Washington, D. C.

THE BASIC intent of the Congress of the United States in enacting the Federal Food, Drug, and Cosmetic Act was, in the case of drugs, to make the use of drugs, whether by laymen or medical practitioners, a safer procedure than it was before passage of the law. The legislative history of the Act does not show that Congress had any intention of preventing self-medication when this can be done safely and is not contrary to the interests of public welfare.

The Act itself unequivocally requires the labels of all drugs to bear "adequate directions for use." It provides, however, that where "adequate directions for use" are not necessary for the protection of the public health, the Federal Security Administrator shall promulgate regulations providing for exemption from that requirement. The regulations which were promulgated provided exemption for drugs which, because of toxicity or other potentiality for harmful effect or the methods of use or collateral measures necessary to use, are not generally recognized by experts as safe and efficacious except by or under the supervision of a physician, dentist, or veterinarian, if, among other things, their labels bore the statement "Caution: To be dispensed only by or on the prescription of a . . . . .", the blank being filled in with one or more of the words "physician," "dentist," or "veterinarian."

Many companies who wished to limit sales of their products exclusively to physicians, dentists, and/or veterinarians abused the above statement provided by the regulations. Many items which could be labeled with "adequate directions for use" for over-the-counter sale for self-medication were labeled instead with the so-called "Rx legend." It was not uncommon to see on the same shelf in a drugstore two different brands of a simple home remedy, having similar compositions, labeled as an over-the-counter item by one manufacturer and as a prescription-only item by another. Such inconsistencies created confusion in the minds of pharmacists with the result

that, to many druggists, the "Rx legend" had little or no meaning.

The alarming dangers of this situation became apparent when food and drug inspectors began to uncover instances of gross negligence, apathy, or culpable greed on the part of some pharmacists, and even a few physicians, in selling to any person asking for them such potent and dangerous drugs as barbiturates, amphetamines, sulfonamides, and sex hormones. It frequently developed that these purchases were made for the purposes of immorality, self-destruction, satisfying an established habit, self-treatment of venereal diseases, etc.

These abuses, coupled with the widespread confusion among ethical pharmacists and physicians who sincerely desired to comply with the law, necessitated and brought about enactment of the Durham-Humphrey Amendment to the Federal Food, Drug, and Cosmetic Act. Briefly, this amendment provides that a drug intended for use by man, which is habit-forming or which because of its toxicity or other potentiality for harmful effect, or the method of its use, or the collateral measures necessary to its use, is not safe for use except under the supervision of a practitioner licensed by law to administer the drug, shall be dispensed only on prescription. The labels of drugs falling within this category must bear the statement "Caution: Federal law prohibits dispensing without prescription." The amendment provides further that drugs which do not belong in the above category shall be deemed to be misbranded if their labels do bear that statement.

The Durham-Humphrey Amendment necessitated a change in the regulations previously mentioned which were promulgated to provide for exemption from "adequate directions for use." The regulations as they now stand and as published in the "Federal Register" of July 26, 1952, are, to all intents and purposes, practically the same with respect to drugs for animal use as they were before. The Act itself has not changed. It still requires "adequate directions for use" which are interpreted by the regulations to mean directions under which

From the Federal Security Agency, Food and Drug Administration, Washington 25, D.C.

the layman can use a drug safely for the purpose for which it is intended.

In the case of drugs for animal use, the regulations provide two primary exemptions from the "adequate-directions" requirement of the Act, *viz*:

1) A drug which, because of its toxicity, etc., is not safe for use except under the supervision of a licensed veterinarian shall be exempt if, among other things, its label bears the statement "Caution: Federal law restricts this drug to sale by or on the order of a veterinarian," the recommended or usual dosage, route of administration if not for oral use, and the quantity or proportion of each active ingredient in unofficial preparations fabricated from two or more ingredients.

2) A drug shipped directly to or in the possession of a licensed veterinarian shall be exempt if its label bears the required information enumerated above with the exception that the labels of drugs which would be suitable for over-the-counter sales if otherwise distributed must not bear the "Caution" statement. In the latter instance, however, there is no prohibition against statements which express a firm's sales policy such as "Sold to graduate veterinarians only," "Sales to veterinarians only," etc.

In the official opinion of the Food and Drug Administration, there will be comparatively few drugs for animal use which will be entitled to the exemption of the first category. Officially, we must take the position that every owner of animals has the inalienable human right to attempt to make his own diagnosis and to attempt treatment of his own animals which admittedly are his own property. He has a statutory right to demand and receive safe and efficacious drugs with which to attempt that treatment if he so desires. It is the duty of the Food and Drug Administration to enforce the Act in the interests of the general public, particularly the requirements for adequate directions for effective use and adequate warnings for safe use, and the prohibition against false or misleading claims.

We are occasionally asked, by veterinarians who believe that most drugs for animal use should be restricted to professional use only, why the Food and Drug Administration does not place more restrictions on such drugs. In addition to the preceding comments, we must recognize that Congress sets public policy when it

enacts laws and in this instance the medication of animals by their owners has been accepted as public policy when the medicine can be safely and intelligently administered by the lay user. Other than to insist on strict enforcement of local veterinary practice laws the best way, and perhaps the only way, for a practitioner to protect his professional interests from the inroads of those who promote and adopt lay treatment of animals is to provide an up-to-date, scientific service of a higher type than that which can be rendered by nonveterinarians.

Veterinarians in practice should give consideration to the application of the Act and its various regulations to their own activities. Those who dispense drugs to treat conditions which they have diagnosed in animals which they have actually seen have little to concern them other than to furnish the owner with directions and warnings for proper use of the drugs dispensed. On the other hand, however, a veterinarian who sells a drug without a personal knowledge of the animal's condition may be assuming the role of a retail pharmacist making an over-the-counter sale. A drug should not be dispensed in this manner unless it bears, when sold, a label containing (1) the name and address of the manufacturer, packer, or distributor; (2) the quantity of contents in the package; (3) the common or usual name of each active ingredient; (4) adequate directions for use; and (5) adequate warnings if necessary.

In a bacteriological study of atrophic rhinitis in pigs, "*Erysipelothrix rhusiopathiae* was not found in any of the animals examined" (*see lead article in this issue on "Atrophic Rhinitis"* by Shuman *et al.*).

### Canadian Border to Be Opened

The United States Department of Agriculture announced on Nov. 28, 1952, that the Canadian border will be opened on March 1, 1953, for the importation of livestock and livestock products, providing present conditions continue. The border was closed Feb. 25, 1952, when foot-and-mouth disease (*aftosa*) was diagnosed in the Province of Saskatchewan. The last infection was found on April 28 and all infected animals were slaughtered three days later. On August 19, Canada was declared free of the disease.

## The Building Program of the California State Animal Pathology Laboratory

ARTHUR G. BOYD, D.V.M.

*Sacramento, California*

California's Livestock and Poultry Pathology Laboratory building program has now passed the halfway mark. Administered by the State Division of Animal Industry, California Department of Agriculture, the building program, calling for four new animal disease diagnostic laboratories, was started through legislation passed in 1946.

The first of these laboratories was opened in January, 1950. Located at San Gabriel, in Los Angeles County, it serves veterinarians and livestock and poultry producers in the southern part of the state.

The second of these laboratories (fig. 1 and 2) at Fresno, started operating Oct. 1, 1951, and serves the San Joaquin Valley and adjacent areas.

A third laboratory is now under construction at Petaluma and is expected to start operation by July, 1953. The Petaluma laboratory will serve the north coast and San Francisco Bay area.

Sites for the fourth new laboratory, which will be located at Sacramento, are now being considered. This laboratory will serve the Sacramento Valley and adjacent areas.

The general layout of these structures

follows rather closely the same plan as to type of construction and arrangement. The buildings are of concrete slab, wood, and stucco, with composition roof. The investment in each laboratory, including site and equipment, will average about \$240,000. The floor space for each laboratory is between 10 and 11 thousand square feet. These laboratory buildings include a reception room, a business office, an office for the veterinary pathologist in charge, library and conference room, two poultry autopsy rooms with joining consultant offices, large animal autopsy room, serology room, bacteriology room with separate inoculation room, wash and sterilizer room, a room for storage of mediums, air-lock isolation rooms, and animal, brooder, feed, storage, and utility rooms, and a garage.

One feature of the new laboratory layouts is an arrangement for several airlocked isolation rooms for use in the diagnosis of highly communicable diseases. All of the laboratories are planned so as to be located near main arteries of travel in the areas served. Ample parking facilities are included at each laboratory.

The average staff at each laboratory

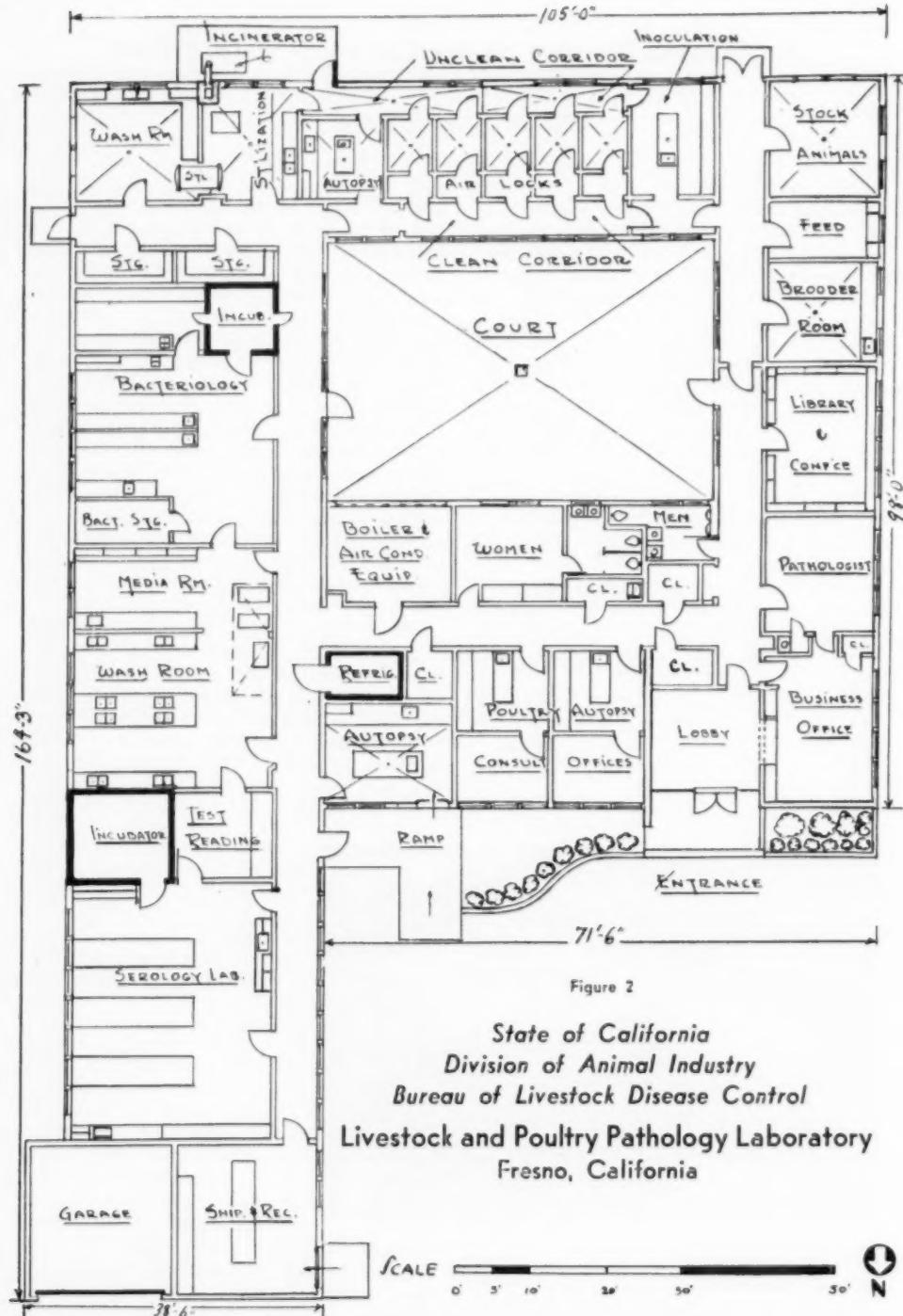


Fig. 1—Aerial view (architect's drawing) of the Livestock and Poultry Laboratory of the California Department of Agriculture, Fresno.

From the Division of Animal Industry, California State Department of Agriculture.

Dr. Boyd is chief, Division of Animal Industry, California Department of Agriculture, Sacramento.

consists of a veterinary pathologist in charge, two veterinarians, two technicians, clerk, and maintenance man. In addition, several seasonal workers used in the pul-



lourum and paratyphoid testing programs are employed through funds furnished by the industry. As many as 12 to 15 seasonal workers are used at present at San Gabriel and a similar number at Sacramento.

For over twenty years, the California State Division of Animal Industry operated poultry laboratories serving the Los Angeles and Petaluma areas in housing furnished by the industry and conducted a general livestock and poultry diagnostic service at Sacramento in quarters not designed for laboratory purposes.

In addition to the laboratories mentioned, the state for the past three years has maintained a poultry pathology laboratory service at Turlock in housing furnished by the industry. It is planned this service will be continued.

The system of laboratories planned, especially for diagnostic service, is evidence that this work is very popular with livestock and poultry producers, as well as veterinary practitioners.

We (the U. S.) go into the fall season with fewer dairy cows and less milk production per capita than at any time in the past thirty years on a national basis.—*West. Dai. J., Sept., 1952.*

The hands of an x-ray victim. These carcinomas resulted from failure to take proper precautions to prevent fluoroscope and x-ray injuries in a veterinary practice.

### Vesicular Exanthema Score

Vesicular exanthema was reported on Nov. 21, 1952, to have been diagnosed in Connecticut and Rhode Island for the first time. It has also reappeared in Maryland, which had been cleaned up, and in new areas in Pennsylvania, Illinois, and Missouri which still had areas under quarantine. On the other hand, the disease has now been eradicated in Michigan and in areas of Illinois and Texas. The score now is—12 states, 7 of them in the northeast, have quarantined areas, and 19 states freed from the disease, a total of 31 which have been affected.

*Cutaneous Anthrax and Antibiotics.*—The British Medical Journal reports that four persons with cutaneous anthrax were treated with chloramphenicol and made a rapid, satisfactory recovery. A fifth case was treated, as a control, with penicillin, sulfadiazine, and arsenic. The treatments seemed equally effective.—*Vet. Bull., July, 1952.*

I have never seen a 1 to 100 brucellosis reaction in an unexposed animal.—B. T. Simms, D.V.M., Chief, U. S. Bureau of Animal Industry.



# SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

## Removing the Vocal Cords of Fowl

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MANY ATTEMPTS have been made to remove the vocal cords of fowl, without success. Within the author's knowledge, no one has succeeded in producing a mute fowl previous to this announcement. Perhaps one of the reasons for failure is that those attempting to remove the vocal cords failed to realize that nothing short of a major operation would succeed.

The description of the syrinx and trachea of a chicken given by McLeod and Wagers<sup>1</sup> is used in this article to describe some of the anatomy involved in this operation.

### THE LARYNX

The larynx consists of two parts separated by the length of the trachea. The separate parts are known as the anterior, cranial, or respiratory larynx, and the posterior, caudal, or thoracic larynx. The functions of the larynx are likewise divided. The respiratory larynx is a valvular apparatus which regulates the volume of air respired and prevents the aspiration of foreign material. The posterior larynx is the organ of voice and is, therefore frequently called the syrinx.

### THE TRACHEA

The length of the trachea is strengthened by a narrow muscular band, trachealis muscle, along each side. Just anterior to the posterior larynx these muscles leave the trachea, become cylindrical, pass backward and downward to insert on the costal process of the sternum. The latter muscles, sterno trachealis, are given credit for aiding in the production of voice.

### THE SYRINX

The syrinx is located in the thoracic cavity at the bifurcation of the trachea. The last three-eighths of an inch of the latter is flattened and its wall almost membranous. The terminal ring of the trachea is bony. Posterior to this bony ring the membranous wall of the trachea is strengthened by three or four cartilaginous bars on either side. At the bifurcation of the trachea is a strong, prismatic, bony bar reaching from the dorsal to the ventral wall. The medial wall of each bronchus has its origin from the posterior lateral border of the bar, while the anterior edge is continued by a semilunar fold of mucous membrane.

The first part of the lateral bronchial wall is membranous. If the trachea and bronchus



Fig. 1—Two mute Beltsville White toms that have had their vocal cords removed—one on Jan. 29, 1952, and the other May 13, 1952.

From the School of Veterinary Medicine, University of Missouri, Columbia.

<sup>1</sup>McLeod, W. M., and Wagers, M. S.: The Respiratory System of the Chicken. J.A.V.M.A., 95, (1939): 62-63.

are pushed toward each other, a second semilunar fold appears at the origin of the bronchus. These folds represent the vocal cords. They are separated by a pointed oval opening, the rima

glottidis. The arrangement is identical at the origin of both bronchi. If the bronchus and trachea are stretched, the lateral fold tends to disappear and the rima becomes larger. Really, the vocal apparatus is paired, except that the medial fold serves both sides. A remarkable spherical bony box complicates the structure of the syrinx of the male duck and goose. This is called the *bulla tympaniformis*.

#### SYRINX OF OTHER FOWL

Since the anatomy of the syrinx of turkeys and other fowl differs in some details from those of the chicken, as described by McLeod and Wagers, an attempt will be made to point out the essential differences, with particular reference to the turkey. This is especially important, since the use and application of this operation probably will be more concerned with that of other fowl than that of the chicken.

The syrinx of the turkey is not flattened laterally and is more conical and more compact longitudinally than in the chicken. The last two rings of the trachea anterior to the syrinx consist of bone and are connected to the ventral surface of the prismatic bone (*osteum syringium centralis*)<sup>\*</sup> by a short, flat bone. This gives a certain degree of rigidity not present in the syrinx of the chicken. This arrangement precludes any possibility of pushing the trachea and bronchi toward each other as described by McLeod and Wagers for the chicken. The rest of the anatomical arrangement is probably the same as for the chicken, with this exception: The posterior wall of the rima glottidis consists of a very strong cartilaginous tissue which tends to maintain this organ's size and position.

The anatomy of the syrinx of the female goose is the same as that of the chicken except that the prismatic bone (*osteum syringium centralis*) is longer and more delicate than that of the chicken. The comparative anatomy of the syrinx of the male duck and goose, which is complicated by the boxlike structure (called the *bulla tympaniformis*), has not yet been investigated and the operation applied to these male species.

#### THE OPERATION

It has not yet been determined just what age is best for the operation to be per-

formed. It would appear, however, from the limited experience of the author, that younger birds (half grown) are to be preferred. This is a reasonable assumption, since organs of younger birds are more resilient and tend to lend themselves more readily to the operation.

Whether the operation will cause birds to be permanently mute needs further observation. (It is the opinion of the author, however, that if the operation is properly performed the muteness will be permanent.) One bird has been under observation for eight months and is still mute; another bird has remained mute for 175 days after the operation. Unless the operation is carefully performed, a bird may recover its voice in a variable time.

The birds selected for the operation should be fasted for twelve to eighteen hours, and the less fat the better. The bird is placed on the operating table on its back with the body extending to the edge of the table so the head and neck will hang down over the edge. The feet and wings are fastened securely.

Complete anesthesia is produced by the use of pentobarbital sodium (nembutal), or other suitable intravenous anesthetics, using approximately 1 cc. to each 5 lb. of body weight. This anesthetic may be injected most conveniently in the radial vein on the underside of the wing or the saphenous vein at the inner surface of the hock joint. It should be injected slowly until complete anesthesia is produced. In case of respiratory failure, breathing may be restored by pressing downward and forward on the sternum and repeating this at about the rate of respiration of the fowl until the bird recovers its normal breathing. This respiratory failure is more likely to occur at the time of the penetration and exposure of the clavicular air sac in performing the operation.

The greatest difficulty involved in the operation is to reach and properly expose the lower segment of the trachea and the syrinx. Situated as it is in an inaccessible position within the thoracic cavity superimposed upon the base of the heart and its emerging network of blood vessels, the syrinx presents a difficult surgical approach.

The surgical area involved is the median line anterior to the sternum at the thoracic inlet. An incision is made through the skin

\*After consultation with J. E. Weinman, the name "osteum syringium centralis" is suggested for the prismatic bone which is so important in the voice of fowl.

beginning at the anterior ventral point of the sternum and extending dorsally to the base of the neck. The skin is then retracted to the right to expose the muscles and fascia which extend under the skin and

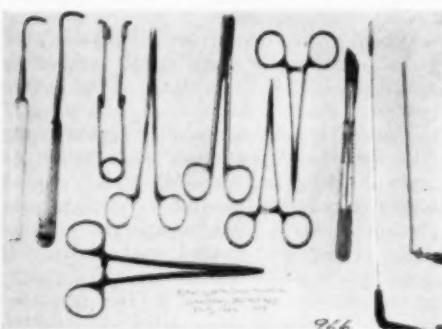


Fig. 2—Instruments used in the operation to remove the vocal cords of fowl.

across the thoracic inlet and serve to hold the crop in position. By blunt dissection, this tissue is then separated from its attachment along the muscles that lie over the right clavicle bone. This tissue is then retracted, along with the crop, to the left in order to expose the trachea and thoracic inlet. Covering the immediate inlet and posterior to the crop is a thin triangular membrane containing considerable fat. This covering should be dissected loose from its attachment on the right and retracted to the left with the crop. All hemorrhage should then be controlled before proceeding further.

The next step in the operation is to free the trachea from the surrounding tissues and muscles which hold it firmly at the point where it enters the thoracic inlet.

In the chicken this includes two sets of muscles. One is the sterno trachealis muscle which was thought by some to control or influence the voice of fowl, but this is not confirmed by the author. The other is the sterno hyoid muscle. This muscle has its origin on the anterior medial surface of the sternum. This paired muscle passes forward and upward to the ventral surface of the trachea (just anterior to the syrinx). Then, like the sterno trachealis, it strengthens the trachea by its narrow muscular band along the ventral surface of this organ to reach its insertion at the base of the cranial larynx. This muscle is absent in the turkey.

After the trachea is freed of its attachments, a network of blood vessels will be found closely adherent to the trachea—mostly ventrolaterally, but with small connecting branches across the ventral surface of the trachea. These branches should be ligated at both ends, since they are likely to be bisected in the next surgical procedure, which would result in continuous hemorrhage and interfere with the operation (by masking the surgical area).

A  $\frac{1}{2}$ -in. sterile gauze bandage is then passed around the trachea at a point approximately 1 in. anterior to the thoracic inlet. This bandage is then tied firmly around the trachea without causing distortion, and the two loose ends are used to exert traction to pull the trachea and syrinx anteriorly for about  $\frac{1}{2}$  in. Great care must be exercised in this procedure, since the syrinx is easily ruptured if too much pressure is exerted in pulling it forward. A small electric light taken from a protoscope is inserted in the thoracic inlet from above and held just anterior to the surface of the sternum. This light is held just above the syrinx to properly illuminate the operative area of the trachea and syrinx.

By means of a long slender pair of surgical scissors with sharp points, the trachea is slit open ventrally, beginning at a point approximately 2 in. anterior to the prismatic bone and extending to its ventral surface. This incision should be made as nearly as possible in the ventral median line of the trachea.

A small double retractor, such as is used in caponizing, and adjusted to give only slight retraction, is placed in the anterior end of the slit and pushed gently posteriorly toward the syrinx. This will automatically expose the anterior surface of the prismatic bone. A very small electric cautery with a slender, long handle is passed down the slit in the trachea until it reaches the anterior surface of the prismatic bone. The light is then readjusted to better illuminate the operative area. The circuit is then completed in the batteries supplying current for the cautery. It is moved up and down the anterior surface of the prismatic bone until the surface of the bone is cauterized, which will be indicated by a blackened condition. This cauterization takes only a very short time—probably less than a second. The circuit is then cut and the instrument removed.

By turning on the current only after the cautery is in position and turning it off before removal, all danger of injury to adjacent tissues by the cautery is avoided. The light and retractor are removed, the crop returned to the normal position, and the skin closed by a continuous suture.

Each operated fowl should receive  $\frac{1}{2}$  cc. of procaine penicillin G intramuscularly, and this injection should be repeated the third day following the operation; or  $\frac{1}{2}$  cc. of procaine penicillin and streptomycin\* (as used for mastitis in cattle) may be injected into one of the infraorbital sinuses and repeated the third day after the operation. The use of antibiotics is believed by the author to be an important procedure, since there is a tendency for a diphtheritic membrane to form in the syrinx extending from the cauterized area laterally, causing the closing of the bronchi and death from asphyxiation.

Birds appear to recover quickly from the operation and male chickens have been observed trying to crow two days after the operation. One hen that was decackled and which was laying at the time of the operation was again in production within a week.

The use of this operation on chickens might be advantageous for those who have a few pet chickens in areas where the cackling and crowing would be objectionable to the neighbors. Geese have recently come into prominence in the West and Middlewest, where they are used as weeders of cotton fields and berry patches, especially strawberries and plants of that nature, since, strange to say, the geese will consume the grass and weeds and leave the berry plants unmolested. Since a goose has a life span of thirty to forty years, muted geese could be used as weeders for long periods in congested areas, where they otherwise could not be maintained because of the noisy cackling.

On large estates, the popularity of peafowl, because of their beautiful plumage and decorative value, would be increased in many cases if it were not for their objectionable penetrating cries. These cries may be heard for half a mile and often extend into the night as late as ten o'clock: and, like the rooster, they may wake up at

4:00 a.m. If this operation can be extended to these beautiful birds, whose life span may be fifty years, to eliminate this one objectionable feature, peafowl might become more popular on large estates.

One other use of the operation which is suggested, and is the basis for which the original investigation was initiated by the author, is removing the gobble from turkey toms. The application of this operation on wild turkey toms involves a technical point in wildlife management which can not be discussed in this article, but may have an important bearing on the restoration of wild turkeys in Missouri.

### Gut Perforation by Non-Metals

A physician reports 12 cases in which nonmetallic bodies perforated an intestine. The object was most often a chicken or fish bone; place—a colon diverticulum or the ileum; mechanism—sometimes a transverse impaction resulting first in necrosis; pain—intermittent for a few days, probably due to spasm of the bowel, or constant as from peritonitis; result—low grade peritonitis, little seepage due to blockage by the foreign body, then to peritoneal reaction and adhesions.—*Brit. M. J., Oct. 25, 1952.*

*Large Babies and Diabetes.* — It was believed that large babies reflected an inherited predisposition or an abnormal weight gain of the mother during pregnancy. From a statistical standpoint, one factor seems to stand out: the mothers of a significant percentage of abnormally large babies are diabetics. The size reflects an enlargement of most internal organs, especially an enlarged heart and spleen in these babies.—*Current M. Digest, Nov., 1952.*

*Surgery for Intestinal Volvulus.*—Laparotomies for relief of intestinal volvulus or intussusception in cattle are reported. The right flank is used, the omentum incised, and the affected gut brought to the opening where, if reduction is impossible, a resection and anastomosis can be done. The omental incision should be sutured separately.—*Irish Vet. J., Oct., 1952.*

\*Penicillin, 150,000 units, and dihydrostreptomycin, 5 mg.

## Canine Abortion Apparently Due to *Brucella Abortus*

E. V. MORSE, D.V.M., M.S., Ph.D.; M. RISTIC, Dipl. Vet., D.M.V.; L. E. WITT, D.V.M.; L. WIPF, Ph.D.

*Madison, Wisconsin*

Dargein and Plazy<sup>2</sup> observed a bitch which aborted and whose serum contained Brucella agglutinins. This animal was incriminated as a source of human brucellosis. Nenzani<sup>3</sup> reported that Brucella were the cause of abortion in a dog which had a Brucella agglutinin titer of 1 : 5,000. Beach,<sup>1</sup> as well as Gilman, Larson, and Green,<sup>4</sup> investigated cases of canine abortion which were apparently due to Brucella. Unfortunately, none of the animals could be obtained for bacteriological examinations. This report deals with a case of

canine brucellosis from which *Brucella abortus* was isolated from the uterus and vaginal discharges several weeks after abortion.

A 7-year-old Cocker Spaniel was presented to one of us (L.E.W.) for examination. The animal was from a ranch on which 18 of 21 cattle were Brucella reactors. Thirteen of the cows had aborted. The dog aborted on the fifty-fourth day of pregnancy, delivering 4 dead and 1 living pup. Unfortunately, the fetuses were not cultured. The dog's serum reacted at the 1 : 200 dilution level by the plate blood-serum agglutination test. The animal was depressed and had a green, mucous vaginal discharge. She was given 0.33 Gm. of dihydrostreptomycin intramuscularly every twelve hours until 1 Gm. had been administered. Six weeks later, the dog and the



Fig. 1—Endometrium of Brucella-infected bitch, showing semihyalinization, chronic inflammatory reaction, enlarged blood vessels, and uterine glands.  
x 80.

From the Department of Veterinary Science, University of Wisconsin (Morse, Ristic, and Wipf). Dr. Witt is a practitioner at Sidney, Mont. Paper No. NS113.

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pup which had survived the abortion were shipped to Wisconsin for further study. The bitch's vaginal discharge persisted and

the Brucella serum agglutination titer was 1 : 800 by the tube test method.

*Antemortem Examinations.*—The vaginal discharges were collected on cotton swabs and streaked on a selective Brucella agar medium.<sup>4</sup> Over 1,500 Brucella colonies

cella colonies per agar medium plate while 0.85 Gm. of homogenized uterine material contained approximately 20 million Brucella. Brucella were not isolated from the spleens of guinea pigs which were inoculated with materials which proved to be bacteriologically negative on agar medium. Brucella blood-serum agglutinin titers did not develop in these guinea pigs.

A chronic endometritis was present. The uterine mucosa was covered with a gray adhesive exudate and small hemorrhagic areas were present on the endometrial surface. Other gross alterations were observed, but it was felt that they could not be attributed to brucellosis.

Histopathological examination of the uterus disclosed a chronic inflammatory reaction with the presence of numerous monocytes, plasma cells, and polymorphonuclear leukocytes. The blood vessels throughout the organ were enlarged and evidences of hemorrhage were observed. Small areas of the endometrium were irregularly denuded. Many of the uterine glands were enlarged and cystic. Apparently they were occluded. Portions of the endometrium were semihyalinized, while scarring and areas of necrobiosis were also present.

Epithelioid cell proliferation was the predominant change in the iliac lymph nodes of the dog. Hemosiderin was also observed indicating areas of previous hemorrhage. Chronic inflammatory cells were also evident.

*Postmortem Examinations of the Pup.*—The young female was destroyed at 8 weeks

TABLE I.—Infectivity for Guinea Pigs\* of the Canine Strain of Brucella Abortus

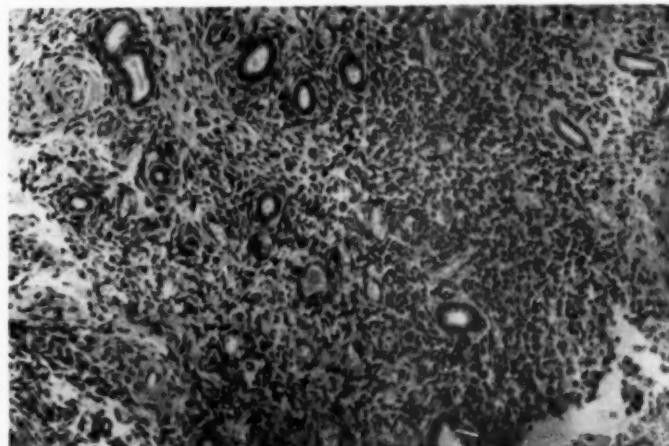
No. organisms inoculated	No. positive spleen cultures
6.12 X 10 <sup>6</sup>	5
6.12 X 10 <sup>5</sup>	4
6.12 X 10 <sup>4</sup>	5
6.12 X 10 <sup>3</sup>	3
6.12 X 10 <sup>2</sup>	1
6.1 X 10 <sup>1</sup>	0

\*Five guinea pigs inoculated intraperitoneally with 1 ml. of saline suspension containing Brucella. Autopsy performed at four weeks after inoculation.

were observed on a single agar plate inoculated with one of these swabs. Brucella were not isolated from the blood or feces of the bitch. Antemortem bacteriological examinations were not made of material from the pup.

*Postmortem Examinations of the Bitch.*—The animal was destroyed approximately seven weeks after she had aborted. Euthanasia was performed by exsanguination under nembutal<sup>®</sup> anesthesia. Urine, blood, and milk were cultured for Brucella as were separate homogenates of the liver, spleen, lungs, kidneys, uterus, tonsils, and the following groups of lymph nodes: pharyngeal, esophageal, bronchial, mesenteric, iliac, and gastrohepatic. Brucella were isolated from the uterus and iliac lymph nodes. The iliac node material yielded fewer than 10 Bruc-

Fig. 2.—Uterus of bitch, showing chronic inflammatory reaction, enlarged glands, and blood vessels.  
x 150.



of age. Her tissues were cultured but only the pharyngeal-esophageal lymph node pooled material contained Brucella. These lymph nodes were slightly enlarged and their cortical surfaces contained small hemorrhagic areas. Microscopically, these lymph nodes gave evidences of chronic inflammation, hemorrhage, reticular scarring, and necrosis. Guinea pigs were inoculated with culturally negative tissues homogenates in the same manner as was done with the tissues from the bitch. Brucella were not isolated from these guinea pigs and serum agglutinin titers were not present.

The Brucella which were isolated from both dogs were classified as *Br. abortus* since a 10 per cent carbon dioxide tension was required for growth, and the organism was inhibited by thionin but not basic fuchsin. An antigen prepared from the bacterial cells was agglutinated in high titer Brucella antiserum to the endpoint titer of the serum.

Six groups of 5 guinea pigs each were inoculated intraperitoneally with serial dilutions of a saline suspension of the strain of *Br. abortus* isolated from the dogs. The number of organisms necessary to produce infection in guinea pigs is summarized in table 1. The blood serum of all infected guinea pigs contained Brucella agglutinins at the time of autopsy. The virulence of this strain for guinea pigs appears to be comparable to that of other field strains of *Br. abortus*.

**Summary.**—A case of canine abortion from which *Brucella abortus* was isolated at autopsy several weeks later has been presented. The authors consider the bacterium to be the causative agent and hence responsible for the abortion. The 1 puppy which survived was also found to be infected. The pathological findings for both animals have been described. The number of viable *Br. abortus* organisms present in the uterus and vaginal discharges of the bitch were sufficient to present a hazard to both human and animal health.

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<sup>4</sup>Kuzdas, C. D., and Morse, E. V.: Unpublished data, 1952.

<sup>5</sup>Nenzani: cited by Feldman, *et al.*, J. Infect. Dis., 56, (1935): 55-63.

Estrus, produced in a young heifer with hormone injections, will, if she is vaccinated later with strain 19, cause her to maintain a high titer.—*L. M. Hutchings, D.V.M., Purdue University.*

Several heifers that came in heat before being vaccinated with strain 19 were followed. They all carried a high reaction titer for a long time.—*B. L. Lake, D.V.M., Illinois.*

**Estrogen Passed Through Milk.**—The milk from heifers which had received an implantation of 250 mg. of stilbestrol was fed to normal and to spayed rats for three months. Histological changes and an increase of uterine weight was believed to indicate that the estrogen was excreted in the milk. Male rats were not affected.—*Vet. Bull., Oct., 1952.*

**A Black Chinchilla.**—Chinchilla mutations are appearing. A Minnesota breeder reports a chinchilla whose fur is black over the entire body but the under fur is gray. Its litter mate had a normal color.

A Wisconsin breeder reports two albino chinchillas.—*Am. Fur Breeder, Nov., 1952.*

#### Insemination Despite Cervicitis

A new method of intrauterine insemination by way of the rectum is suggested for cows with an abnormal cervix. The equipment consists of a glass syringe, 2 ft. of flexible tubing, and a 16-gauge bleeding needle. The semen is drawn into the tubing, then a cork is placed on the needle while it is being carried forward in the rectum. The needle is thrust through the wall of the rectum and on into the lumen of the uterus where the semen is deposited. While developing this technique, 3 cows were thus injected with milk of magnesia several times over a period of four months. Upon autopsy, no signs of injury or infection were found. Three of 4 cows inseminated in this manner have dropped living, healthy calves. Limited field trials using this technique are now under way.—*J. of Dai. Sci., Oct., 1952.*

# The Employment of an Emergency Systemic Coagulant in Veterinary Practice

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SEEING HEMORRHAGES, as a result of trauma, infection, or poisoning can, in animals as well as man, become a serious problem and in many cases terminate fatally. Since the great majority of these hemorrhages are internal, the first symptom may be bloody stools and/or bloody vomitus; then shock; finally death. In animals, internal seeping hemorrhages may go undetected for a considerable period unless the owner's attention is called to the condition by bloody vomitus or bloody diarrhea. Seeping hemorrhages also occur postoperatively.

Vitamin K is a valuable drug in the treatment of hemorrhage, especially in cases in which the patient shows a high prothrombin time. It has been found, however, that in dogs it is practically impossible to determine prothrombin levels. Also, vitamin K requires several hours to become effective, since it must first be converted to prothrombin in the liver. It is, therefore, of little value in emergencies.

About a year ago, the author's attention was called to a preparation which seemed to be highly effective in combating seeping hemorrhage. According to reports,<sup>1-6</sup> it has been employed in human medicine for a number of years with great success. It may be administered intravenously and/or intramuscularly (never topically) and its initial action is very rapid. The product<sup>\*</sup> is a combination of oxalic and malonic acids in an aqueous solution. Despite the fact that these two acids are commonly known as anticoagulants, they appear to become effective coagulants in the amounts contained in this preparation and when administered in proper dosages.

In emergency cases, the preparation should be administered intravenously for rapid action and this may be followed by an intramuscular injection for more prolonged effect.

When desirable, as in massive hemorrhage or in shock, 2 cc. of the preparation may be incorporated with 100 to 300 cc. of glucose-saline solution and administered intravenously.

TABLE I—Koagamin—Parenteral Coagulant

Animal	Wt. (lb.)	Condition	Route	Dos- age	Effectiveness
1. Shepherd X	30	Epistaxis after ext. of 4th prem. (20 cc.)	IV	2 cc.	Satisfactory
2. Cocker Spaniel	35	Epistaxis from muzzle	IV	2 cc.	Satisfactory
3. Boxer	29	Vein loose, left ovary	IV	2 cc.	Satisfactory
4. Boxer	53	Cesarean	IM	2 cc.	Satisfactory
5. Irish Setter	65	Auto accident, no shock	IM	2 cc.	Satisfactory
6. Boxer	53	Panhyysterectomy in heat, 2 yr.	IM	2 cc.	Satisfactory
7. Cocker Spaniel	20	Panhyysterectomy in heat, 1 yr.	IM	1 cc.	Satisfactory
8. Shepherd X	30	Auto accident, shock	IV	2 cc.	Satisfactory
9. Cocker Spaniel	25	Auto accident, shock	IV	2 cc.	Died in 48 hr.
10. St. Bernard	125	Panhysterectomy overweight, difficult	IV	2 cc.	Satisfactory
11. English Setter	40	Cancer, uterus	IM	2 cc.	Died 3 days
12. Cocker Spaniel	28	6 wk. pregnant, panhyysterectomy	IM	2 cc.	Satisfactory
13. Bull X	38	12 yr., internal anastomosis	IV	2 cc.	Died 2 days
14. Boston Terrier	23	Uncomplicated cesarean	IM	1 cc.	Satisfactory
15. German Shepherd	60	Panhysterectomy, excess bleeding	IV	2 cc.	Satisfactory
16. Terrier & pups (6)	2	Coccidiosis, bloody diarrhea, hookworms	IM	1/2 cc.	All died, 2-6 days
17. Irish Terrier	33	Dog fight, hematoma right gluteal	IM	2 cc.	Questionable
18. Cocker Spaniel	25	Splenectomy	IM	2 cc.	Satisfactory
19. English Bull X	39	Auto accident, internal injuries	IV	2 cc.	Died 10 min.
20. Irish Setter	41	Auto accident, fractured femur and internal injuries	IV	2 cc.	Recovered
21. Shepherd X	59	Panhysterectomy in heat	IV	2 cc.	Satisfactory
22. Terrier X	40	18 yr. old, carcinoma left of penis	IV	2 cc.	Satisfactory
			IM	1 cc.	

Dr. Whitney is a small animal practitioner in Orange, Conn.

\*Koagamin was supplied by Chatham Pharmaceuticals, Inc., Newark 2, N. J.

TABLE I (Continued)—Koagamin—Parenteral Coagulant

Animal	Wt. (lb.)	Condition	Route	Dos- age	Effectiveness	Animal	Wt. (lb.)	Condition	Route	Dos- age	Effectiveness
23. Collie Shepherd	41	Vomiting blood 12 days; gastric erosion; (?) poison	IV	2 cc.	Died 24 hr.	45. Beagle	26	Auto accident, punctured lung, fractures	IV	2 cc.	Died
24. Cocker Spaniel	21	Pan hysterectomy in heat	IV	2 cc.	Satisfactory	46. Poodle	75	Radical mam- mary operation	IV	2 cc.	Satisfactory
25. Springer Spaniel	40	Fistula from parotid; excess bleeding	IM	2 cc.	Satisfactory	47. Springer Spaniel X	40	Excessive hemorrhage during estrus	IM	2 cc.	Question- able
26. Collie	44	Nose crushed by auto; ex- cessive bleeding	IV	2 cc.	Satisfactory	48. Fox Terrier (6 pups)	8-12	Bacterial dia- rhea with blood, com- plications	IM	1/2 cc.	4 died, 2 lived
27. Boxer	20	Auto; thoracic injury, shock	IV	2 cc.	Satisfactory	49. Collie- Shepherd	40	Dog fight	IV	2 cc.	Died 30 min.
28. Hound X	41	Auto; fractured tibia and fibula; laceration; bleeding 1 hr.	IV	2 cc.	Died 48 hr.	50. Husky X	64	Hematoma ear, excessive bleed- ing after surgery	IV	2 cc.	Question- able
29. Terrier X	12	Intestinal carcinoma, hopeless	IV	2 cc.	Died 4 days	51. Scottie X	35	Four skin tumors removed under local	IV	2 cc.	Satisfactory before surgery
30. Cocker Spaniel	12	Virus, possibly carries, bloody diarrhea	IM	1 cc.	Died last day daily (4)	52. Welsh Corgi	40	Auto accident, fracture of femur, swelling at site	IV	2 cc.	Question- able
31. Cocker Spaniel	11	Virus, possibly carries, bloody diarrhea	IM	1 cc.	Died last day daily (4)	53. English Bull	51	Submaxillary fistula, exces- sive bleeding	IV	2 cc.	Satisfactory
32. Cocker Spaniel	11	Virus, possibly carries, bloody diarrhea	IM	1 cc.	Recovery, daily bloody diarrhea gradually subsided over 10- day period	54. Cocker Spaniel X	21	Intussusception, little hemor- rhage	IV	2 cc.	Died before surgery
33. Beagle	30	Hematuria, carcinoma bladder	IM	2 cc.	Improved daily (3) then died						
34. Shepherd X	48	Auto accident, shock	IV	2 cc.	Satisfactory						
35. Sheltie	27	Auto accident, fractured pelvis, and shock	IV	2 cc.	Satisfactory						
36. Springer Spaniel	60	Carcinoma, splenectomy	IV	2 cc.	Died 3 days						
37. Hound	47	Chronic bleed- ing under fore- skin	IM	2 cc.	No change daily (4)						
38. Terrier	30	Excessive hemorrhage, spay	IV	2 cc.	Satisfactory						
39. Dachshund	38	Excessive bleeding from surgery of 6 perianal car- cinomas	IV	2 cc.	Satisfactory						
40. Cocker Spaniel	30	12 yr., auto accident, shock, extent of in- juries unde- termined	IV	2 cc.	Died						
41. Boxer	18	Excess hemor- rhage, ear crop- ping	IM	1 cc.	Satisfactory						
42. Boxer	18	Excess hemor- rhage, ear crop- ping	IM	1 cc.	Satisfactory						
43. Boxer	18	Excess hemor- rhage, ear crop- ping	IM	1 cc.	Satisfactory						
44. Boxer	65	8 yr. pyometri- tis; panhysterec- tomy	IV	2 cc.	Satisfactory						

Klausman<sup>7</sup> described a large series of traumatic, infectious, and surgical conditions, in which hemorrhage was a factor, and in which this preparation proved effective. Blamey<sup>8</sup> reported a successful series of cases and stated that "Koagamin is administered routinely to every animal coming to my attention where hemorrhage exists or is suspected." Klausman and Brown<sup>9</sup> employed the preparation in a series of deliberate warfarin poisonings and credit it with having saved 47 of 61 animals treated. Henderson<sup>10</sup> had occasion to use the preparation in a circus horse which had been castrated. The horse was a true hemophiliac and bled profusely. Every attempt to combat the hemorrhage was unsuccessful until this preparation was employed, and it was rapidly effective.

When it was decided to employ this preparation and record the results, it was done with the idea that it would not be used routinely but rather in the more difficult, and often hopeless, cases. The reason for this was since the author knew of no preparation which could be used as a control, the very fact that these animals recovered could be attributed to the use of the preparation under investigation.

Therefore, it will be noticed in table 1 that there were cases of carcinoma, of dis temper, and other cases considered hopeless.

In all, this preparation was employed in 54 cases and in 31 of these it seemed to be an important adjunctive treatment in the recovery of the animals. Four others might have recovered without the use of the preparation and these were marked "ques-

It is considered that the use of this preparation at this time reduces the danger of excessive seeping hemorrhage.

The breakdown of the cases listed in table 1 is shown in table 2.

#### CONCLUSION

A series of 54 difficult cases of hemorrhage and conditions terminating in hemorrhage has been described.

Nineteen of the patients died, but 11 of these were beyond aid when treatment with this preparation was initiated.

As a result of clinical observations, it is felt that this preparation has definitely shown itself to be of great value as a coagulant whether it is used preoperatively, postoperatively, or in emergencies, and whether the condition is traumatic or infectious in origin.

The preparation was used in 7 difficult panhysterectomies and 6 of these recovered, in spite of the fact that the animals were in heat or pregnant at the time.

Table 2—Breakdown of Cases in Table 1

Type of case	No.	Satisfactory	Died
Surgical	27	21	6
Traumatic	18	13	5
Infections	9	4	5

Note: Since the cases marked "questionable" in table 1 survived, they have been listed in table 2 as "satisfactory."

tionable." The remaining 19 were completely hopeless cases (such as case 40 which died before the drug could act), and these will be discussed later in this paper, along with some successful cases which were unusual.

#### DISCUSSION

It is presumed that in the majority of the 19 cases which died, no known drug would have altered the outcome. The preparation was injected more or less experimentally to test its action in the control of bleeding in these conditions. Thus, among these were 5 cases of carcinoma; 3 of virus, in which virus and secondary invaders were the lethal factor; and 1 case (No. 40) in which the animal died within ten minutes after arrival, so that the preparation had no time to exert its action. In case 23, the animal had been bleeding steadily for twelve days before the preparation was used and here, again, profuse blood loss, shock, and extensive ulceration of the gastrointestinal tract were undoubtedly responsible for the fatal outcome. In case 54, little hemorrhage was noticed—the intussusception being fatal. Thus, 11 cases of the 19 failures were considered hopeless before this preparation was employed. On the other hand, 7 cases of panhysterectomy with the animal in heat were reported and only 1 of these died. This animal showed intolerance toward the anesthetic, pentobarbital sodium. Subsequent questioning of the owner revealed previous indications of a kidney condition. Since clotting time is greatly prolonged during estrus, panhysterectomy is discouraged except in cases of urgency.

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- <sup>10</sup>Henderson, J. Y.: Personal communication, May, 1952.

Vibrionic abortion has been diagnosed in about 12 herds of cattle in Illinois in the past five or six years but not in the past two years. It has been diagnosed once in sheep, in Montana.—D. A. Rhodes, D.V.M., University of Illinois.

### A Pseudohermaphrodite Dog

An 18-month-old Spaniel was bisexual in character with an enlarged clitoris extending  $\frac{1}{2}$  in. beyond the lips of the vulva. The dog was attracted by females and at the same time was attractive to males. On autopsy, it was found to have a fairly normal vagina and uterus, with a gonad at the tip of each horn and a fibromuscular cord extending from each gonad down through the respective inguinal canal to the fat in the scrotal area. Histological examination revealed that both gonads were testes with well-developed interstitial cells and seminiferous tubules but no active spermatogenesis. Since no ovarian tissue was found, it could not be called a true hermaphrodite.—*Brit. Vet. J., Oct., 1952.*

### Plastic Surgical Instruments

Transparent surgical instruments made from methyl methacrylate resin have been developed for neurosurgical operations. Superior in many ways to their metal counterparts, they are inexpensive, easily handled, light in weight, transparent—so the underlying matter can be seen—do not conduct the electrocoagulating current, and are sufficiently durable.—*J. of the Student, Oct., 1952.*

### Dwarfism in Cattle

Dwarfism in cattle is becoming a serious problem to range cattlemen, according to the University of Nevada. Until recently, it was mostly a problem in improved purebred herds but, as these herds provide range bulls, the condition has become prevalent in range cattle.

Tests indicate that in some herds 7 out of 10 range bulls are carriers of dwarfism. A national effort is underway for its control. Ranchers are asked to aid by reporting cases.

Dwarfism can be identified, at least theoretically, by a device called a profilometer, developed recently. The instrument sketches a mature bull's head revealing a bulge in the mid-forehead bones if the animal is a dwarf carrier. When such bulls are mated to carrier cows, approximately 25 per cent of the offspring will be dwarf calves. Large scale tests with this device are being conducted in Colorado and Nevada in an effort

to avoid dwarfism.—*Univ. of Nevada Agric. Exten. Serv.*

### Observations on Fertilization

Penetration of the rat's ovum by the sperm occurred shortly after ovulation in normally mated rats but was delayed four hours or more when the sperm was deposited, after ovulation, directly in the periovarian sac. In rabbits, most of the ova were fertilized if the sperm were introduced into the fallopian tube a few hours before ovulation. The mammalian sperm apparently undergo some preparation in the female tract before they can penetrate the ovum.—*Vet. Bull., Oct., 1952.*

### Cervical vs. Uterine Insemination

In one survey, 3.4 per cent of 1,072 pregnant cows developed estrus and were bull-bred without disturbing their pregnancy. To test the effect of two methods of insemination of pregnant cows, the intrauterine method was used on 5 and all aborted within five days, while pregnancy was interrupted in 2 of the 10 intracervically inseminated cows. In comparing the efficiency of the two methods, 8,833 open cows were treated by 12 inseminators. The conception rates were practically identical; therefore, the intracervical method is preferable.—*Vet. Rec., Oct. 11, 1952.*

**Deep-Freeze Storage of Semen.**—Cambridge University will collaborate in a cattle improvement program with Pretoria University in South Africa by providing the latter with semen for artificial insemination from bulls in England. This is feasible because of the new deep-freezing process devised at Cambridge University for the storage of semen.—*Vet. Rec., Oct. 18, 1952.*

Armour Laboratories has developed a new by-product to be used in rebuilding noses, foreheads, chins, and other human features. The material is obtained from the breastbones of freshly slaughtered young cattle. The technique was worked out during World War II.—*Am. Cattle Producer, Nov., 1952.*

# CLINICAL DATA

## Observations on a Milk Factor in Bovine Hyperkeratosis

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Lincoln, Nebraska

SINCE Olson, Cook, and Brouse<sup>1</sup> observed that bovine hyperkeratosis was due to the ingestion of a toxic feedstuff, a number of different materials have been shown capable of producing bovine hyperkeratosis. These include: a pelleted feedstuff involved in an outbreak of the disease,<sup>2</sup> a feed concentrate,<sup>3</sup> a wood preservative,<sup>4</sup> stabbing conditions and/or feed on premises where cattle have been affected with the disease,<sup>5</sup> a lubricant,<sup>6</sup> contaminated hay,<sup>7</sup> and chlorinated naphthalene.<sup>8,9</sup> We now have evidence of another apparently toxic material, biological in nature.

A report that a cow had hyperkeratosis continually for five years led to an investigation. We have made certain observations on the conditions and these observations are reported herewith in order to stimulate further investigations by others.

### MATERIALS AND METHODS

One cow only was kept on a small acreage for production of milk. In 1944, cow 1 was kept on the premises. She had had 3 calves (calves A, B, C, chart 1) all of which were normal. A suckling calf (calf D, chart 1) was purchased. This calf soon developed a thickened skin. The condition of the skin improved somewhat as the calf grew. The calf was later fattened and sold. The cow on the premises at the time (cow 1, chart 1) developed mild skin lesions near the base of the tail. Soon, thereafter, a calf born to cow 1, in 1944, began to develop a thick and roughened skin. The condition of the skin was the most severe at about 2 weeks of age. The skin of the entire body, with the exception of the legs from the hoofs to knees and hocks, showed symptoms

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The author gratefully acknowledges the assistance of Mr. H. B. Hornby, Ainsworth, Neb., and members of the Department of Animal Pathology and Hygiene, University of Nebraska, Lincoln, in making these observations and studies.

of hyperkeratosis. This calf was retained by the owner and became cow 2 (chart 1) on which most of our observations have been made. Cow 1 was kept for four years more but remained barren. The skin condition near the base of the tail lasted for only a short time.

Cow 2 was carefully examined in September, 1949. At that time, she had a definite hyperkeratosis of the skin on both sides of the neck, about the top of the neck, and over the withers. In these regions, there was much exfoliation and distinct cross-hatching of the skin which was markedly thickened and accompanied with only a moderate loss of hair. The skin over the hips and both sides of the base of the tail was inelastic, somewhat thickened, and developed thick encrustations with loss of hair. These lesions never completely disappeared and differed from those of the neck area which usually cleared up in the summer and developed again with cold weather. The skin in the escutcheon and between the front quarters (dewlap area) was moderately thickened and showed some scaliness. Biopsy was made from the skin on the neck, the histology of which was typical for bovine hyperkeratosis. The owner reported that the cow had periods of



Fig. 1—Cow 2 in August, 1951, at time when she was most nearly normal. Only a slight wrinkling of skin can be noted on side of neck.

remission and exacerbation of these skin lesions but was never completely free (fig. 1). The oral cavity was essentially negative. Subsequent to this first examination, the owner's report of periods of remission and exacerbation was confirmed. These could not be correlated with any tangible

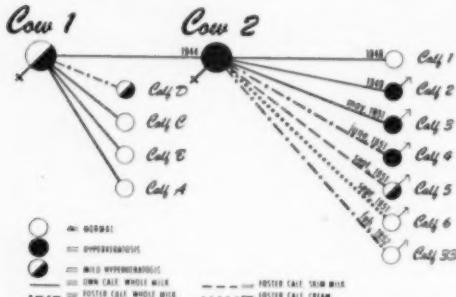


Chart 1—Diagrammatic representation of the relationship between cows with hyperkeratosis and the extent of the disease observed in calves receiving their milk.

circumstance. The cow was fed alfalfa or prairie hay and grain raised in the local area, supplemented with bone meal. She had access to a small pasture, the principal plant growth being downy brome grass, sweet clover, and crested wheat grass. The cow had always been in good flesh, ate well, was a good producer of milk, and apparently had normal estrous cycles. No wood preservatives, lubricants, insecticide, or bactericidal sprays were used in the environment of the cow.

Cow 2 produced 4 calves (calves 1, 2, 3, 33, chart 1). Calf 1 was sold at about one week of age and was apparently normal. Calf 2 was born in July, 1949, and developed definite skin lesions a week to ten days after it was born. These were most severe when it was 2 to 4 weeks old and then the condition gradually improved. When examined in September, 1949, at about 3 months of age, there was thickening of the skin with exfoliation in the region of the escutcheon, extending down to and including the scrotum. A biopsy specimen of the skin from calf 2 showed a marked hyperkeratosis with irregularity of the rete pegs. There was some polyblastic infiltration with eosinophils in the corium. These changes were like those seen in bovine hyperkeratosis. The oral cavity of calf 2 was normal; the skin lesions continued to improve.

Calf 3 was born May 4, 1951. He was fed whole milk for three or four weeks, then a mixture of whole and skimmilk for the following two weeks when he was placed on skimmilk only. A heavy dandruff was noted at about 1 week of age and a few days later the skin became thick and hard. The lesions began in the region of the withers and extended over the greater part of the trunk and the face. No lacrimation or salivation

was observed in the calf. When the calf was 3 months old, hyperkeratosis was marked, but it did seem to be improving (fig. 2). The skin was still somewhat abnormal when the calf was 1 year old.

The owner suspected the condition to be contagious and, to make a test, purchased a Hereford calf when it was born June 2, 1951. The Hereford calf (calf 4, chart 1) was placed with calf 3 and given the same feeding. Calf 4 began to develop a hyperkeratosis at about 2½ to 3 weeks of age. When examined at the age of 2½ months, the hyperkeratosis was confined mainly to the withers, neck, dewlap region, and between the front legs (fig. 3). No lacrimation or salivation had been noted. There was a healing ulcer on the mid-dorsal aspect of the tongue. The oral cavity was examined again three weeks later. At this time, the ulcer was still present on the tongue and there was a papilloma-like growth on the left side of the tongue. Hyperkeratosis of the skin was perhaps less severe on calf 4 than on calf 3. The skin was about normal when the calf was a year old.

Since the owner was firmly convinced that the condition was contagious or due to some factor on his premises, arrangements were made for an experimental feeding trial. Two calves born Sept. 2 and 6, 1951, were obtained on September 12 from a herd free from bovine hyperkeratosis. They were placed in the same building used to house the cow and, for a while, together in the same pen. One calf (calf 5) was given skimmilk from cow 2. The other calf (calf 6) was given cream from cow 2, which was mixed with a commercial powdered skimmilk. The amount of skimmilk and the amount of skimmilk powder with cream were gradually increased as the calves grew older. This feeding schedule was maintained for forty-five days.

Calf 5 developed mild hyperkeratosis on the shoulders on the thirteenth day. Two days later, these areas were slightly enlarged and there was also some scabbing on the neck and around the eyes. On the seventeenth day, the patches were about 2 by 3 in. in area. On the thirty-seventh day of the experiment, the skin on both sides of the neck and about the head of the tail showed exfoliation. There were irregular areas on the left shoulder and right hind leg where the skin had been affected, and there was loss of hair. These areas were marked by fresh, new, more darkly colored hair covering a normal skin. Growth of the calf seemed to be fairly good although it was not fat. The calf had developed a diarrhea on the second day of the feeding trial. The diarrhea lasted for about four days, and then became more or less persistent. This could best be described as a watery and mucous diarrhea. The calf eventually recovered and grew in a normal way.

Calf 6 which received cream from cow 2 developed a diarrhea on the second day of the feeding trial. This lasted only a few days. The calf

Fig. 2—Calf 3 at about 3 months of age showing marked hyperkeratosis and loss of hair on withers, neck, and side of face. Marked lesions were present around the base of the tail, on the trunk, and escutcheon. The condition gradually improved although some evidence of the disturbance was present about one year later.



remained well and no hyperkeratosis developed.

Another feeding trial with a day-old calf from a normal herd was attempted in December, 1951. Extremely cold weather made the calf pen untenable and this trial could not be completed. In February, 1952, cow 2 was moved from her environment on the small acreage to the laboratory in Lincoln. Her milk obtained at the end of lactation (from the 51st to the 16th days prior to calving) was fed to calf 33. At the beginning of this feeding trial, Feb. 26, 1952, calf 33 was 2 days old and had received colostrum from its mother. Calf 33 was given whole milk from cow 2 for thirty-four days. No definite symptoms or evidence of hyperkeratosis developed. There was

slight lacrimation at ten days and again at twenty-three and thirty-five days. About the only possible abnormality observed was a poor rate of gain in weight after feeding of milk was stopped.

Further feeding trials were planned but unfortunately cow 2 died from parturient paresis.

#### DISCUSSION AND SUMMARY

Development of hyperkeratosis in calves 4 and 5 indicates that milk was a principal cause. The failure of calf 6 to develop hyperkeratosis suggests that the factor was less concentrated in the cream and also eliminates environment as a factor so far

Fig. 3—Calf 4 at about 2½ months of age showing hyperkeratosis over the withers and shoulder region.



as the calf was concerned. Environment, including feed and water, may have influenced the toxicity of the milk from cow 2 since her milk was not toxic after she was removed from her original location. This was shown by the lack of response of calf 33 fed milk at end of lactation. Further study must be made to clearly establish the significance of concentration of the toxic substance in milk at end of lactation as compared with influence of environment.

The history of the animals involved suggests that there may be some hereditary tendency for this condition, since cow 1 had hyperkeratosis in a mild form. It is difficult to understand the origin of the disturbance. Calf D developed the condition soon after it was brought onto the premises and at about the same time that it developed in ewe 1. It is unknown at this time whether cow 1 gave the condition to calf 2 or whether both were exposed to some inciting cause.

Olafson and McEntee<sup>3</sup> reported that milk coming from a cow receiving a hyperkeratosis-producing feedstuff was toxic to calves, although the symptoms of these calves were not clearly described. Cow 2 may have been exposed to some extraneous factor in her original environment that led to her hyperkeratosis and also the toxic condition of her milk. At this time, it can be said that the suspected extraneous factor did not affect calf 6.

Cow 2 was a remarkable case in that hyperkeratosis seemed to persist although there were periods of remission. This may represent some abnormality of a basic metabolic process. The death of cow 2 has prevented further study of the condition at this time.

The development of mouth lesions, such as ulceration and papilloma-like lesions, in calf 4 supports the idea that this condition resembles that of bovine hyperkeratosis.<sup>1</sup>

The loss of cow 2 before completion of studies was regretted. Sufficient work was done with her, however, to indicate the need for further investigation in this area. Since this type of disease occurred in one cow it must happen to others. Their identification for further study simply becomes a problem in looking for them. A cow whose history is suggestive of this condition should be brought to the attention of those working with bovine hyperkeratosis, for investigation.

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**Hyperkeratosis in Wisconsin.**—Until November, 1951, x-disease (hyperkeratosis) was rarely seen in Wisconsin but in the next seven months, 1,085 cases were reported in cattle on 268 farms. When it appears, farmers are advised to feed only home-grown feeds.—*Farm J.*, Nov., 1952.

#### Poliomyelitis Incubation Period

A knowledge of the average incubation period of a disease has academic interest and medicolegal importance. Unfortunately, there is a dearth of reliable information in many diseases. One authority estimated the incubation period for poliomyelitis as between three and thirty-five days, with many cases developing between four and ten days.

Recently, an outbreak with 29 cases occurred in an inaccessible rural area. Since contacts were few, they could be traced. The incubation period apparently averaged about twelve days. This is in agreement with experimental evidence where virus was fed to monkeys and chimpanzees, also with data on the interval from tonsillectomy to the onset of bulbar poliomyelitis.—*Am. J. Pub. Health*, Nov., 1952.

## Trials with Di-Phenthane-70 on the Sheep Tapeworm, *Moniezia expansa*

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DI-PHENTHANE-70, *bis*(5-chloro-2-hydroxyphenyl) methane, was introduced in January, 1946, as a teniacide for dogs<sup>1</sup> and shortly thereafter reported to be effective against tapeworms in sheep.<sup>2</sup> Considerably later, Ryff and associates<sup>3,4</sup> published the only results of trials in the ovine host that are of record in a technical journal. The data deal chiefly with the fringed tapeworm, *Thysanosoma actinoides*, but throw some light also on the action of the drug against the broad tapeworm, *Moniezia expansa*. Doses of 10 Gm. were apparently effective in 4 sheep and gave a good clinical response in 92 others; also, a dosage of 0.04 Gm. per pound of body weight appears to have been adequate.

### METHODS

Parasitized sheep were confined in individual, concrete-floored pens that precluded extraneous infection. Bags for feces collection were attached one to three days before treatment and for at least three days thereafter. The drug (teniathane tablets) was given in capsules without preparatory fasting. Feces were examined daily after being soaked in water to soften the pellets and facilitate screening. Strobilae were rendered as free as possible from foreign material. They were drained in a fine-meshed sieve, transferred to a graduated cylinder partially filled with water, and the displacement recorded. The material was then examined for scolices. Animals were autopsied two to three weeks after treatment. Tapeworms were measured and recorded in the same manner as the tapeworm material from the feces after treatment, and some allowance must therefore be made for the comparatively greater volumetric displacement of this fresh material. Weight changes were recorded in some instances.

### RESULTS AND DISCUSSION

The results are given in table 1. It was not feasible to calculate definitive efficacy when the drug was only partially effective. This was not occasioned by disintegration of tapeworms<sup>1</sup> but, rather, by limitations of the critical test. A contributory factor may

be pellet formation, since the process undoubtedly causes some destruction of scolices. Therefore, it can not be definitely established that scolices recovered in the feces, if any, represent all or only a portion of those removed by the drug. The result obtained by the conventional method of calculating efficacy, therefore, is conservative and does not reflect the true value of the treatment. Conceivably, a larger proportion of scolices might be recovered from scouring animals, but in such cases also there is doubt that all are recoverable. An index of teniacidal action is afforded, however, by comparing the amount of tapeworm

TABLE I—Data on the Teniacidal Action of Di-Phenthane-70 Against *Moniezia* in Sheep

Animal (No.)	Tapeworm material recovered (cc. water displacement)						Efficacy (%)
	Weight <sup>a</sup> (lb.)	Dose (Gm.)	Before treat.	After treat.	At autopsy		
A-81	49.0	4.5	1.9	16.0	0.0	100	
A-82	62.0	5.5	0.7	29.0	0.0	100	
A-2	88.0	7.3	4.1	30.0	0.0	100	
A-119	58.0 (+2.0)	5.0	2.0	16.0	128.0 10M	±	
A-138	63.0 (+1.5)	5.25	1.2	14.0	1.2 19M	±	
A-154	61.0 (+3.0)	6.1	2.9	11.3	93.5 15M	±	
A-115	38.0 (+1.5)	10.0	0.9	8.5	2.0 4M	±	
A-149	46.0 (-1.0)	10.0	3.1	35.7	73.0 8M	±	
A-164	43.0 (-5.0)	10.0	1.0	37.5	1.3 3M	±	
S-11*	76.0 (-7.0)	15.0	2 seg.	2.2	0.0	100	
A-150	61.0 (-1.0)	15.0	9.0	86.6	0.0	100	
A-117**	35.0 (+4.0)	15.0	14.8	0.0	0.9 1M	0	
A-156†	45.0 (-6.0)	15.0	—	—	—	—	

( ) = Weight change 2 weeks after treatment; M = number of complete tapeworms; ± = teniacidal action exhibited but percentage of efficacy incalculable.

\*Off-feed, weak, lethargic, feces semiliquid for three or four days.

\*\*Off-feed, lethargic, feces pasty for three or four days.

†Off-feed, feces pasty for three or four days.

From the Zoological Division, Agricultural Research Center, Beltsville, Md. Dr. Sinclair was transferred to O.F.A.R., Lima, Peru, Sept. 3, 1951.

material eliminated before and after treatment; yet greater significance must be attached to the amount of tapeworm material remaining at autopsy and, particularly, the number of scolices.

In preliminary trials, di-phenthane-70 was well tolerated by 2 tapeworm-free animals, a sheep and a goat, that were given approximately 0.5 Gm./6 lb. of body weight. This is the dosage recommended for dogs but compares favorably with that reported to be effective against *Moniezia*.<sup>3</sup> This dosage was given to 6 sheep infected with *Moniezia*, and definite teniacidal action was indicated by a marked increase in the amount of tapeworm material eliminated in the feces after treatment. The drug was completely effective in 3 animals, but 3 others harbored 10, 15, and 19 tapeworms, respectively, when autopsied two weeks after treatment. In 2 of the latter, several strobilae contained gravid proglottids; the largest of 19 tapeworms in the other animal, however, was only 7.0 cm. in length. It is evident that in these trials di-phenthane-70 was not uniformly effective against *Moniezia* when administered in dosages from 0.082 to 0.10 Gm. per pound, although in the aforementioned report, half this dosage appeared to be sufficient for the removal of this tapeworm.

Likewise, because of the reported efficacy of 10-Gm. doses,<sup>4</sup> this dose was given to 3 sheep weighing 38 to 46 lb. There was in these cases also, a substantial increase in the amount of tapeworm material in the feces after treatment, but at autopsy, fourteen to seventeen days later, these animals contained 3, 4, and 8 tapeworms, respectively. In the animal having the largest number, several strobilae contained gravid proglottids. It will be noted that these animals received 0.217 to 0.263 Gm. per pound, dosages considerably larger than those reported<sup>5</sup> (0.04 Gm./lb.) to be sufficient.

In 4 additional animals, the dose was increased to 15 Gm., the dosage ranging from 0.197 to 0.428 Gm. per pound. The treatment was completely effective against *Moniezia* in 2 of 3 animals; the other lamb was not infected with tapeworms. It is interesting, though doubtfully significant, that the single failure in this group occurred in the animal that received the drug at the highest dose rate, namely, 0.428 Gm. per pound. Unfortunately, this animal spontaneously eliminated the major portion of

its tapeworm infestation during a two-day period immediately prior to dosing. One tapeworm was found at autopsy, however, twenty-two days after treatment.

With the exception of the 15-Gm. doses, di-phenthane-70 appeared to be well tolerated in all respects. Indications of toxicity were observed, however, in 3 of the 4 animals given 15 Gm. The symptoms included inappetence, diarrhea, lethargy, and general weakness. Loss of weight was noted in several animals, especially in those that were given the larger doses, but this was not considered particularly significant because most of these lambs were rather heavily infested with other gastrointestinal helminths.

#### SUMMARY AND CONCLUSIONS

1) Tapeworms (*Moniezia*) were completely removed from 3 of 6 animals that received 0.5 Gm. of di-phenthane-70 per 6 lb. of body weight, but unsatisfactorily removed from the other 3.

2) Tapeworms were not satisfactorily removed from any of 3 animals given 10-Gm. doses.

3) Doses of 15 Gm., larger than recommended, removed all tapeworms from 2 of 3 sheep. The lone failure occurred in the animal given the highest dose rate, namely, 0.428 Gm. per pound. These doses (15 Gm.) were toxic.

4) It is concluded that di-phenthane-70 is not as reliable as other available teniacides for the removal of *Moniezia*.

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Pigs vaccinated with rabbit origin modified cholera virus vaccine do not withstand challenge well until at least the eighth day. Few die if challenged at four and six days but many have a serious reaction and may as well be destroyed later.—P. D. Beamer, D.V.M., University of Illinois.

## An Outbreak of Bovine Cryptococciosis

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EARLY IN THE fall of 1951, a disease investigation was made in a herd of dairy cattle. From August to December of 1951, approximately 50 of 280 lactating animals had sickened. They manifested the following general clinical signs: transient anorexia, pyrexia, and agalactia.

Most of the animals were affected for four to eight weeks following parturition. They had been housed in the same maternity barn during the last few days of the dry period. It was a routine procedure to infuse all quarters of each mammary gland with a penicillin mixture at the close of the milking period.

That pyrexia was transient was evidenced by the temperatures obtained by the herdsman. The highest temperature recorded was 105 F. in 1 animal, but that of the majority did not exceed 103 F. Concurrent with the anorexia, there was a diminution of milk flow and in some animals lactation ceased. Dyspnea was observed in a few affected individuals. After the initial marked signs, usually both the appetite and condition gradually improved. The cows that continued to lactate did not produce as much milk as prior to the onset of the disease. The following signs of disease—icterus, edema, nasal discharge, uterine or vaginal discharge, hemoglobinuria with one possible exception, abortion, cyanosis, diarrhea, impaction, tympany, and cardiac involvement—which would aid in a clinical diagnosis were not present. Hence, the investigation depended largely on bacteriological examination.

### MATERIALS AND METHODS

Milk, blood, and urine were collected, with strict precautions against sepsis, from 10 animals which were clinically ill or had elevated temperatures. Guinea pigs and hamsters were brought to the farm and inoculated immediately after the samples

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were obtained. Each guinea pig or hamster was inoculated with the milk, blood, or urine of a single affected cow.

In addition to the animal inoculations, samples of the milk, blood, and urine taken to the laboratory were inoculated into various media; for example, Sabouraud's maltose agar for yeasts and molds, thioglycollate broth, blood agar medium containing 5 per cent of citrated bovine blood, albumin Brucella broth, and eosin methylene blue agar.

### RESULTS

The heaviest growth was observed upon the Sabouraud's maltose agar slopes after twenty-four hours of incubation at 37 C. When this heavy, white, glistening mucoid-

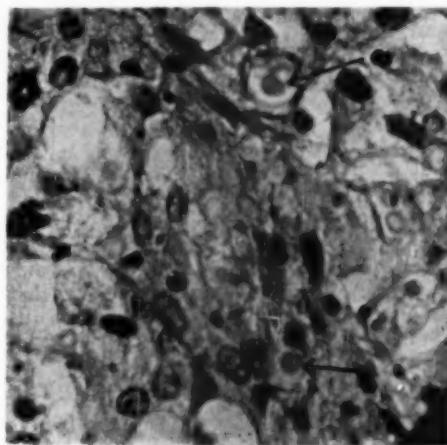


Fig. 1.—Section of mammary gland (cow 531) with a marked granulomatous reaction resulting in displacement of acinar structure. A few cryptococcal cells. x 660.

like, confluent colonial growth was suspended in a dilute aqueous solution of methylene blue, a pure culture of yeast organisms was demonstrable morphologically. Initially, little significance was attached to this observation because the yeasts grew so rapidly. Mixtures of the yeast and bacteria were observed in the cultures from the other media utilized.

An elevated temperature was detected in

only 1 of the inoculated animals. Darkfield microscopic examination of the peritoneal exudates and expressed liver and kidney fluids of experimental laboratory animals did not aid diagnostically. Liver and kidney homogenates from the initial experimental hamsters were inoculated into other hamsters and in one third passage, darkfield examination of the expressed liver fluids, a Leptospira-like organism was observed. Yeast forms were found in great profusion in a number of the peritoneal exudates. Yeasts also were cultured from the milk of the following animals: 543, 232, 408, 169, 349, 531, 379, 538, 268, and 230. These animals represent the group that were sampled.

Since all of the affected animals were rendered unprofitable, they were sold for slaughter. A complete postmortem examination was made of 1 of these.

Cow 531 was born July, 1948, and her second calf was born on Oct. 1, 1951. She was examined for the first time on Nov. 6, 1951, when her temperature was 102.4 F. The milk production on this day was 2 lb. She received three courses of procaine penicillin intramuscularly, a total of over 8 million units, prior to examination on Nov. 23, 1951. When examined on November 23, this cow had a temperature of 105 F. and was mildly depressed. The mammary gland was indurated and tender to palpation. Although two weeks previously her udder was somewhat swollen, there was no gross evidence of mastitis. It was observed that some of the other affected animals had the clinical signs of mastitis. The general condition of the animal on November 23 was good. The gross postmortem findings were as follows:

The mammary gland was markedly fibrous and numerous areas of abscessation were observed on cut section. The hypertrophied supramammary lymph nodes measured 14 by 10 by 4 cm. and were soft and edematous. The iliac nodes were hypertrophied and edematous and measured 8 by 5 by 2.5 cm. The prefemoral, mesenteric, and prescapular lymph nodes were enlarged and edematous. The spleen was somewhat enlarged but did not manifest the hypertrophy common to the majority of the lymph nodes. The apical lobes of the lungs were atelectatic bilaterally; the other lung tissue was normal. The kidneys, heart, bladder, genitalia, and gastrointestinal tract appeared normal.

The tissues taken for microscopic study were fixed in Mossman's fixative. Additional kidney and liver tissues were fixed in 10 per cent formalin

and were stained by the Levaditi technique or the Dieterle stain for *Spirochaeta pallida*. This special staining technique was employed in an attempt to determine the presence of Leptospira. The following significant microscopic pathological alterations were observed on subsequent study.

**Mammary Gland.**—Yeast cells were observed in the acinar structures of the gland. In many areas, the secreting tissue was completely displaced by a granulomatous reaction in which an occasional yeast cell was visible. Some of the acini contained massive aggregations of necrotic debris, polymorphonuclear leukocytes, and inspissated milk secretion. Some focal areas of abscessation were seen.

**Lymph Nodes and Spleen.**—There was marked inflammation of the supramammary lymph nodes as evidenced by exudation of polymorphonuclear leukocytes, hyperplasia of lymphoid elements, extensive edema, and a marked granulomatous reaction. The iliac, mesenteric, prescapular, and bronchial lymph nodes were edematous and hyperplastic. An acute lymphadenitis was evidenced by exudation consisting mainly of polymorphonuclear leukocytes. Hyperplasia of lymphoid elements was observed in sections of spleen. The lesions observed in the destroyed cow are shown in figures 1 to 5.

#### MOUSE INOCULATIONS

Milk from cow 543 was cultured on Sabouraud's agar plates on Oct. 27, 1951. The colonial morphology and wet mounts of the resultant growth revealed a pure culture of yeast. The culture from one plate was suspended in 5 ml. of sterile saline. The turbidity of the suspension was equivalent to the No. 8 McFarland nephelometer tube. Twelve mice were inoculated intraperitoneally with 0.1 ml. of the suspension.

Of 6 mice destroyed on Nov. 11, 1951, 4 had focal liver necrosis. Culture of some of these necrotic foci on Sabouraud's agar slopes revealed the characteristic yeast cell growth. Two mice subsequently died and when found in the litter were too decomposed for examination. The 4 remaining mice were destroyed ten days later. Clinically, 2 of these mice manifested dyspnea as evidenced by marked abdominal breathing. The lungs of these 2 mice were atelectatic, granular, and appeared to be consolidated. Yeasts were cultured from the lungs. One of the 2 other remaining mice had some focal liver necrosis. Although the brains of these mice appeared normal grossly, the microscopic sections revealed a meningitis. The lesions observed in infected mice are shown in figures 4 to 7.

A similar mouse inoculation experiment was performed with milk from cow 232.

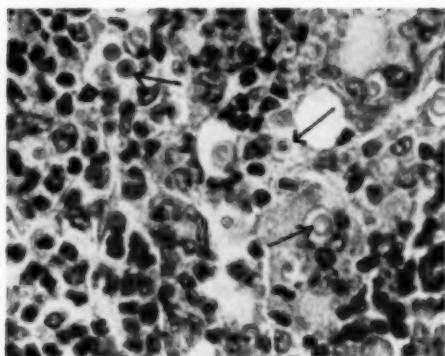


Fig. 2—Section of mammary gland (cow 531) containing the cellular exudation and numerous cryptococci.  $\times 660$ .

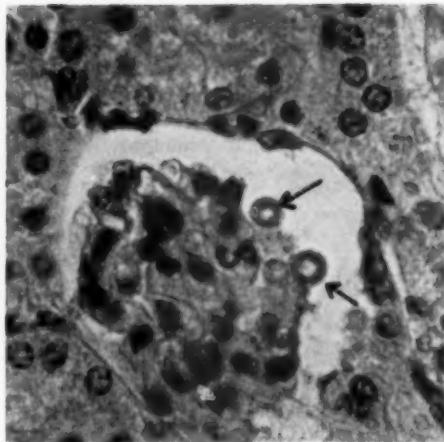


Fig. 5—Cryptococci of mouse kidney involving glomerular tuft.  $\times 660$ .

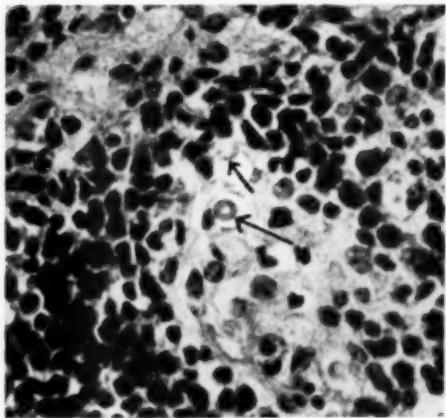


Fig. 3—Section of supramammary lymph node of cow 531, with hyperplasia of lymphoid elements, edema, and cryptococci.  $\times 660$ .

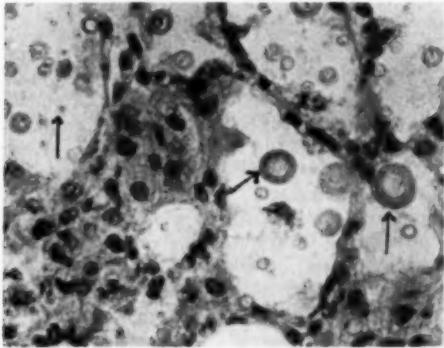


Fig. 4—Cryptococciosis of mouse lung. Various stages of *Cryptococcus neoformans* are clearly evident.  $\times 660$ .

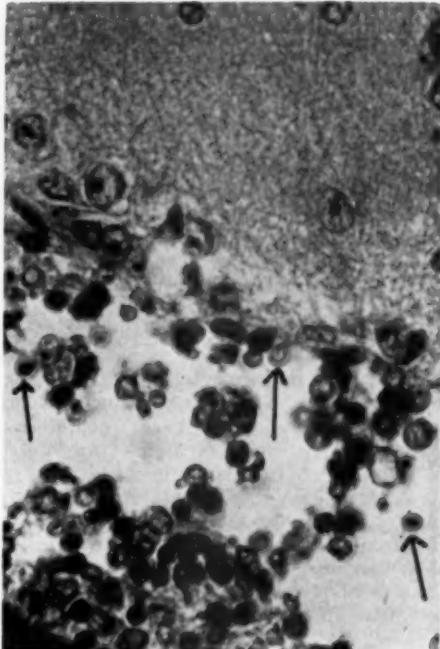


Fig. 6—Cryptococcal meningitis in mouse.  $\times 660$ .

The mice were inoculated on Oct. 27, 1951, and destroyed Nov. 11, 1951. Liver necrosis was evident in 5 of the 13 mice. Yeasts were observed in areas of necrosis in the livers on microscopic examination of sections.

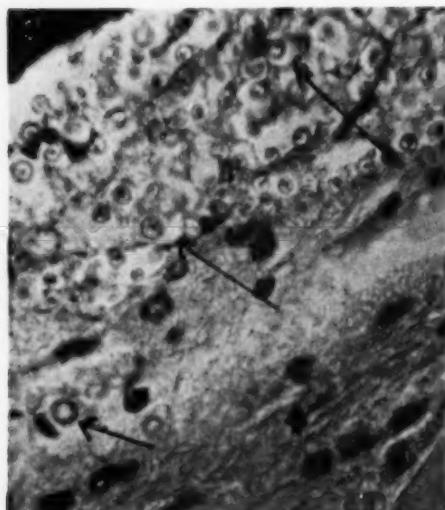


Fig. 7—Lesion at site of inoculation into mouse abdomen; myriads of cryptococci present in subcutaneous.  $\times 660$ .

Intracerebral inoculation of mice with a yeast suspension produced inconclusive results. Thirteen of 15 mice inoculated with 0.05 ml. of a suspension equivalent to the No. 8 McFarland nephelometer tube died of toxic symptoms within twenty-four hours. Lesions were not present in the remaining 2 mice which were destroyed ten days later.

Culturally and morphologically, the yeasts isolated from the various animals appeared identical. A culture submitted to the U. S. Public Health Service Laboratory, Chamblee, Ga., was identified as *Cryptococcus neoformans*.

Subsequent investigation by a private laboratory revealed that the apparent source of the yeast infection was a contaminated glucose solution bottle. One of the herdsmen had been mixing penicillin in this bottle prior to udder infusion. The original source of the organisms is unknown.

Serums from 18 of the affected cattle were submitted to the Department of Bacteriology, Ohio State University, for the

agglutination test for leptospirosis. Fifteen of the 18 serums were negative, 2 contained agglutinins for *Leptospira pomona* in dilutions of 1 : 1,600, and 1 serum had agglutinins at a dilution of 1 : 25,200. One of three additional different samples sent to a laboratory in Iowa was reported positive; the titer was not reported. The significance of these agglutinins is not clear.

A number of antibiotics were administered parenterally and by mammary infusion in an effort to treat the disease. Terramycin, streptomycin, penicillin, and neomycin were not effective against *C. neoformans*. Intramammary infusions of sulfanilamide did not alter the course of the disease.

#### DISCUSSION

It seems reasonable on the basis of the isolation of *C. neoformans* from the milk of 10 cows manifesting systemic disturbance, some with a concurrent mastitis, and of its pathogenicity for laboratory animals, that this organism was a principal cause of the disease in this herd. However, one might speculate as to the influence of antibiotic therapy upon the pathogenesis of the *Cryptococcus* infection and to the possible masking of such therapy upon other infectious agents such as *Leptospira* or other bacteria. Concomitant infection in 4 of the cows was suggested by the positive serological results, although *Leptospira* were not found by special staining methods in any of the tissues of the inoculated experimental animals or of cow 531.

*Cryptococcosis* (torulosis), a mycotic disease primarily of man, is characterized by involvement of the central nervous system including meningitis, skin lesions, and pneumonic involvement. Since the sources of infection of human cryptococcosis are unknown,<sup>2</sup> it is a reasonable assumption that the outbreak in dairy cattle might be a potential public health hazard. When milk from affected cows was pasteurized, the characteristic yeast growth was not obtained on standard milk agar plates. This observation further illustrates the public health insurance derived from pasteurization.

The authors have been informed of an outbreak of mastitis associated with *C. neoformans*.<sup>3</sup> This organism has been isolated from soil by mouse inoculation.<sup>2</sup> Stuart<sup>4</sup> described an acute mastitis caused

by a yeast of the genus *Candida* following infusion of udders with penicillin.

McVay<sup>3</sup> studied moniliasis arising during aureomycin therapy. His therapeutic trials revealed that methyl and propyl paraben (para-hydroxy-benzoic acid) are of value in controlling *Candida albicans* infections associated with aureomycin therapy. The therapeutic evaluation of methyl and propyl paraben for animal mycoses remains to be established.

#### SUMMARY

1) The clinical and pathological features of an outbreak of bovine cryptococcosis are described.

2) Terramycin, streptomycin, penicillin, neomycin, and sulfanilamide were not effective against bovine cryptococcosis as encountered in these circumstances.

3) The administration of an antibiotic without regard for aseptic technique appeared to be the source of the disease in the animals. The loss was substantial since approximately 50 of 280 lactating animals were marketed and the associated milk loss was considerable.

4) The significance of the leptospiral titers in this disease outbreak can not be adequately explained.

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- <sup>1</sup>Pounden, W. D.: Personal communication, 1951.
- <sup>2</sup>Emmons, C. W.: Isolation of *Cryptococcus Neoformans* from Soil. J. Bact., 62, (1951): 685-90.
- <sup>3</sup>McVay, L. V., and Sprunt, B. H.: A Study in Moniliasis in Aureomycin Therapy. Proc. Soc. Exptl. Biol. and Med., 78, (1951): 759-761.
- <sup>4</sup>Stuart, P.: An Outbreak of Bovine Mastitis from Which Yeasts Were Isolated and Attempts to Reproduce the Conditions Experimentally. Vet. Rec., 63, (1951): 314.

## Otorrhea in Dogs Caused by *Pseudomonas Aeruginosa*

H. FARRAG, D.V.M., M.V.Sc., Ph.D., and  
A. HOSNY MAHMOUD, D.V.M., M.R.C.V.S.

Giza, Cairo, Egypt

In the dog, the term canker is used loosely to imply ulceration with discharge and is not correctly used to designate simple inflammation or otitis. It is applied to all aural diseases.

Dr. Farrag is assistant professor in bacteriology, and Dr. Hosny is assistant professor in medicine, Fouad I University, Giza, Cairo, Egypt.

Otorrhea, on the other hand, should be used to designate cases where there is ulceration in the external ear, purulent discharge, and irritation. Ulceration in such cases may have arisen from the presence of dirt, excessive wax, foreign bodies, wet ears, or may follow acute otitis which is in dogs a mere inflammation of the external ear.

In certain breeds of dogs such as the Poodle and the Spaniel, the growth of hair in the meatus narrows its lumen. Moreover, the accumulation of wax and dirt come into close contact with the walls of the canal, resulting in ulceration followed by otorrhea.

Treatment of otorrhea was based on swabbing the ear out and then applying antiseptic powder such as zinc oxide, boric acid, iodoform, or a mixture of all three. Lately, sulfanilamide application has been used. In all these remedies, the powders are liable to become caked and aggravate the condition. Fluid remedies are also used, including glycerin—carbolic, penicillin and streptomycin, etc.

While investigating a number of dogs suffering from otorrhea, a high percentage was found to be infected with *Pseudomonas aeruginosa*. Birrell<sup>1</sup> stated that *Ps. aeruginosa* was obtained as the predominant organism in cases of otitis externa in children and that treatment of these cases with 1 per cent acetic acid gave good results.

Owen<sup>2</sup> added acetic acid to culture mediums in an attempt to inhibit the growth of gram-negative bacilli, especially those of the *coliform*-Proteuspyocyaneus group, thereby facilitating the isolation of gram-positive organisms. It is known that clinicians irrigate with diluted acetic acid wounds contaminated or infected with these organisms.

For these reasons, an attempt to treat otorrhea caused by this organism was made both on naturally and experimentally infected dogs.

**Experimental.**—Six dogs were used in this experiment. Heavy saline suspensions of *Ps. aeruginosa* were instilled into the ears which were then rubbed vigorously in order to get the suspension in contact with the meatus. Five days later, a slight inflammation was observed in the meatus of all 6 dogs. On the tenth day, the symptoms of otorrhea were well established. At this point, treatment was attempted, using dilutions of 1 per cent acetic acid on one group and 2 per cent on the other group. The course of treatment took about

a week at the end of which all signs of otorrhea disappeared. After recovery, 3 dogs were destroyed and examination of the external ear proved them to be free from any inflammation or discharge.

*Naturally Infected Dogs.*—In a group of naturally infected dogs, bacteriological examination revealed the presence of *Ps. aeruginosa* in a high percentage. Ten of these dogs from which the organism was isolated were treated with 1 per cent acetic acid instillated into the ears after the removal of the discharge by swabbing. This method of treatment proved successful, as all signs of otorrhea disappeared in seven to fourteen days depending on the severity of the case.

*Summary.*—(1) A high percentage of cases of otorrhea in dogs proved to be caused by *Pseudomonas aeruginosa*. (2) Treatment of such cases with acetic acid was found to be effective. (3) Dilutions of 1 per cent acetic acid in those cases were as effective as 2 per cent in treatment.

#### References

'Birrell, J. F.: Otitis Externa. Brit. Med. J. 4411, (1945): 80-82.  
 "Owen, Cora Rust: Acetic Acid Inhibition of Gram-Negative Bacilli in Culture Media. J. Bact., 52, 1946.

### Melioidosis in Sheep

This glanders-like disease, due to the *Malleomyces pseudomallei*, is reported by the Department of Agriculture, Queensland, to have been diagnosed for the first time in Australia. In 1949, 80 of a flock of 4,000 sheep died in three months, the majority of them from melioidosis. Ten sheep were exposed experimentally. Of 3 given the culture orally, 1 developed a fatal meningoencephalitis and the other 2 showed no signs of infection; of 3 exposed supraconjunctivally, 1 developed kerato-conjunctivitis which healed in fifty days, and the other 2 showed no infection. The other 4 sheep died or became moribund in from eight to thirty-one days after they were exposed by the following methods: 2 intramuscularly; 1 intravenously, and 1 intranasally. The lesions found later in these experimental sheep were suppuration and ulceration of the nasal mucosa (similar to equine glanders); abscesses of nodules in the lungs, spleen, liver, and lymph nodes; suppurative polyarthritis and meningoencephalitis. It is transmissible to man.—*Austral. Vet. J.*, May, 1952.

### Noseprinting Cattle

Just as persons are fingerprinted, cattle can be noseprinted. Research at the South Dakota Experiment Station has developed a system of classifying each sex of each breed based on four basic noseprint patterns with their various types of ridges, dots, and lines. These noseprints can be separated into over 5,000 different groups, which makes identification more simple. Pressing an ordinary ink pad on the animal's nose, then rolling a No. 2 bluebird blotter (4 x 7 in.) against it will make the print. The system is not in practical use yet.—*Farmer's Digest*, Oct., 1952.

### Value of Killed Virus Vaccine in Prevention of Newcastle Disease

Two groups of chickens were used in the experiment for more than fifteen months. One group was vaccinated the day after hatching, the other group when 10 days old. Both groups showed increased resistance to infections, especially the 10-day group. When 13 weeks old, half of each of these groups was given a "booster" revaccination. The revaccinated birds showed a strong resistance against severe virus challenge through their 29th week. The experiment was continued with chickens hatched from eggs from the vaccinated birds. Chickens from booster-vaccinated hens demonstrated considerable more resistance than did the other chickens.—*Storrs, Conn., News Release*, Nov., 1952.

*Bracken Poisoning in Rats.*—Rats fed on raw bracken fern developed thrombocytopenia, some leukopenia, and marked bone marrow hypoplasia. They also lost weight. These changes were promptly corrected by thiamine therapy. When autoclaved bracken fern was fed, none of the rats showed the hematological abnormalities. Atrophic skin changes, which were not benefited by thiamine, occurred in both groups.—*Cornell Vet.*, Jan., 1952.

### Correction

In the June JOURNAL (pp. 392-396), credit lines for the illustrations were omitted. For figure 1, credit is due the Minnesota Agricultural Experiment Station Technical Bulletin 105. For figure 2, credit is due the Wisconsin Agricultural Experiment Station Research Bulletin 115.

## Continuous Glucose Therapy for Cattle

J. W. BAILEY, D.V.M.

*Fort Atkinson, Wisconsin*

Figures 1, 2, and 3 illustrate a method of supplying continuous glucose therapy which we have found practical under average dairy barn conditions, with the cow remaining in her own stanchion at all times. This is essentially a modification of the system reported earlier by Roberts and Dye.

A supporting harness for a gallon jug is made by connecting two ordinary bull rings with doubled strips of buckram. Four of these strips, 2½ in. wide by about 18 in. long are held apart at equal intervals by another strip of buckram sewed to them at right angles about 6 in. from the lower ring. With the neck of the jug inserted in a ring as shown (fig. 1), it is held in a vertical position when the other ring is

Dr. Bailey is a general practitioner in Fort Atkinson, Wis.

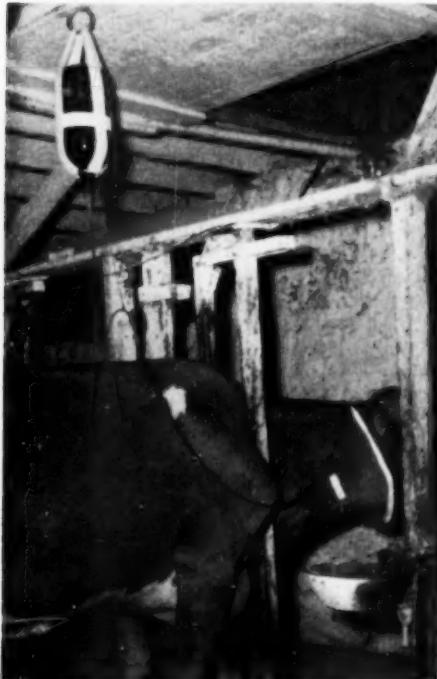


Fig. 1—Intravenous drip apparatus in operation.

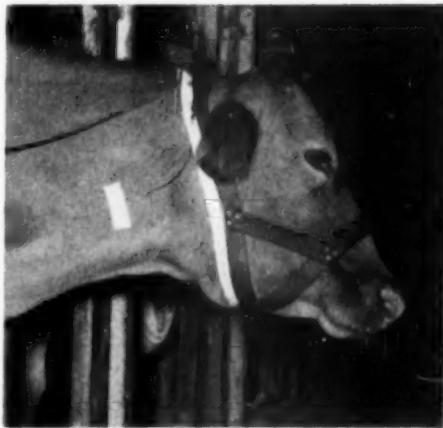


Fig. 2—This picture shows the end of the rubber tubing with the needle passing through the strip of buckram which is riveted to the halter. The plastic tube attached to the needle and extending into the jugular vein is anchored with tape.

hung on a supporting hook. Placing the horizontal strip of buckram near the lower third of the harness makes it easy to remove and insert bottles.

An ordinary intravenous outfit is attached to the mouth of the jug and connected with similar size rubber tubing by means of a connection obtained from Jen-Sal Laboratories. The length of rubber tubing required will vary somewhat according to size of the cow, and is best



Fig. 3—The rate of flow is determined by the adjustment of this paper clip.

determined by hanging the jug in position and making actual measurements. The rate of flow is determined by use of an ordinary spring paper clip attached to the tubing close to the point of connection with the intravenous outfit. Changing its position on the tubing effectively increases or decreases the lumen of the tube.

A 10-in. strip of buckram, 2½ in. wide, is riveted to the right side of an ordinary cow halter, and holes punched in it at 2-in. intervals. The presence of these holes serves to make the apparatus easily adjustable to cows of different sizes. The free end of tubing is carried through a hole near the back of the neck, with entry being made from the under side of the buckram. An adapter is then fitted into the end of the tubing, and a 2-in., 18- or 20-gauge needle connected with it. The needle is passed through another hole from the upper side of the buckram. This material is preferred because it is stiff enough to hold the tubing and needle in the desired position while still being flexible enough so it does not interfere with the flow of glucose.

An area over the jugular vein is shaved and disinfected, after which the vein is punctured with a short 12-gauge needle. A plastic tube is then introduced and threaded down the vein for 16 to 24 in., after which the 12-gauge needle is withdrawn, leaving the tubing in the vein. A strip of tape is used to help anchor it, with about 6 in. of the plastic tubing being left outside the skin to permit limited movement. The small needle attached to the rubber tubing is fitted into the lumen of the plastic tubing to complete the connection.

The plastic tubing was obtained from the Warren-Teed Products Co., Columbus, Ohio, and is available in at least two sizes. The lumen of one takes a 20-gauge and the other an 18-gauge needle, with the respective needles fitting so well that they need not be fastened in place. We favor the smaller size since it permits an adequate flow. The rate of flow can be easily measured by letting the glucose drip in a small graduate for five minute periods, with 200 to 250 cc. per hour appearing desirable in the average case of acetonemia.

A certain amount of slack is needed in the rubber tubing to permit eating, lying down, and other movements. This slack can be held up out of the way by a number of rubber bands doubled together to form a double string. One end is attached to the neck of the gallon bottle, and the other to the intravenous outfit near the connection with the rubber tubing. Adjoining animals may have to be removed, particu-

larly the one on the right side, since they might lick at the tubing and disconnect it.

Glucose of any desired concentration can be given in this manner, but we have used the standard 50 per cent solution so a slower rate of flow would be adequate. With less solution being used, jugs need not be changed so often. Changes are quickly made by disconnecting and removing the empty bottle, then inserting, connecting, and inverting a full bottle with the harness being temporarily removed from the hanger. If an air lock has occurred, disconnect the tubing at the needle until the flow of glucose is resumed.

### Petition for Meeting on Animal Disease Situation

The National Livestock and Farm Organizations Sanitary Committee, the group which broke away from the United States Livestock Sanitary Association in 1951, met in Chicago on Nov. 13, 1952, to discuss the problems resulting from the vesicular exanthema epizootic. They prepared a petition to be presented to the new Secretary of Agriculture requesting that he call a meeting of representatives of all farm and livestock organizations as soon as possible to discuss the entire animal disease situation.

### New Cholinergic Drugs

Watching new drugs come and go is like watching a tennis match. You turn your head one way as they come, another as they go, but occasionally a point is made. The anticholinergic drugs, banthine and prantal, seem to have made a point. They are powerful drugs which are really effective on the motility and secretion of the gastrointestinal tract.—*J. of Iowa M. Soc., Aug., 1952.*

For corneal ulcers use x-ray plus cortisone subconjunctivally, as eyedrops, or as an ointment.—*W. G. Magrane, D.V.M., Indiana.*

When iritis is encountered, three areas should be checked first as possible sources of the disease: the teeth, the tonsils, and the prostate gland.—*W. G. Magrane, D.V.M., Indiana.*

### Antibiotics for Tuberculosis

Seventy patients with active pulmonary tuberculosis were treated for 120 days with 5 Gm. of terramycin daily and 2 Gm. of streptomycin every third day. Of the 66 patients who completed the full course, 97 per cent showed roentgenographic improvement, half of them marked to moderate improvement. Two months after therapy, cultures from 25 patients (39 per cent) were positive for *Mycobacterium tuberculosis* but, in every instance, these cultures were still susceptible to both streptomycin and terramycin. Apparently terramycin, like para-aminosalicylic acid, delays the bacterial resistance to streptomycin.—*Am. Rev. Tuberc., Nov., 1952.*

### Bovine Tuberculosis in Mink

Several persons have called attention to an error in the article entitled "An Outbreak of Bovine Tuberculosis in Mink and Treatment with Rimifon" by Fred B. Pulling, D.V.M. (Nov., 1952, JOURNAL, p. 389). The lines in the second paragraph read: "Ten weeks later, the guinea pig died and yielded pure cultures of tubercle bacillus. The rabbit and the hen were not affected, thus identifying the bacillus as of the bovine type."

Dr. E. E. Jones of the Livestock and Poultry Pathology Laboratory, California Department of Agriculture, reports in a letter to Dr. Pulling, the author, as follows: "We erred in our report to you that the inoculated rabbit was not affected. Actually the guinea pig and rabbit both succumbed to the infection while the chicken remained normal and was negative on autopsy. The diagnosis of the bovine type was correct."

**Rupture of an Aortic Valve.**—A 41-year-old cement worker who did heavy lifting developed a cough and sense of strangling which indicated a ruptured aortic valve. Strangely, he had felt no pain to indicate when the rupture occurred. He showed dyspnea, blood streaked sputum, and periods of prostrating weakness. His heart became large, overactive, with no aortic valve sound. Death occurred in two months.—*J. Am. M. A., Sept. 13, 1952.*

**Uncooked Garbage Banned.**—The Illinois Department of Agriculture has forbidden the feeding of uncooked garbage to hogs after Jan. 1, 1953. A similar ban is in effect in Nebraska and in Georgia.

### Cheiropalatoschisis of a Brahman Steer

KEITH T. MADDY, D.V.M.

Los Angeles, California

A Brahman steer was presented at Atlas Packing Co., Los Angeles, Calif., for inspection by the Bureau of Animal Industry, U. S. Department of Agriculture (fig. 1). On antemortem inspection, it was noted that the steer had cheiropalatoschisis. This is commonly known as a combination of a harelip and a cleft palate. In addition, the frontal bone was deformed so that the horns had grown down and under the lower jaw to such an extent that the mouth could only be opened half an inch.

The owner said the mouth and lip deformity had been present since birth and that the horns had been restricting the jaw movements since the steer had reached 1 year of age. Since then the steer had been fed wet ground feed, and in spite of the chewing difficulty, with good care had

This work was done while Dr. Maddy was veterinary meat inspector in Los Angeles, Calif. He is now base veterinarian at the Oakland Army Base, Oakland, Calif.



Fig. 1—A Brahman steer with cheiropalatoschisis and a deformed frontal bone which caused the horns to grow down and under the lower jaw.

reached a weight of 1,400 lb. by the time it was 2 years of age, when it was slaughtered.

Normally, calves with such an anomaly as this are destroyed at birth as they are usually unprofitable to feed.

Postmortem inspection revealed no more than had been observed on antemortem inspection. The animal was normal otherwise and was passed for food. (The owner took the head and had it mounted to hang over his fireplace.)

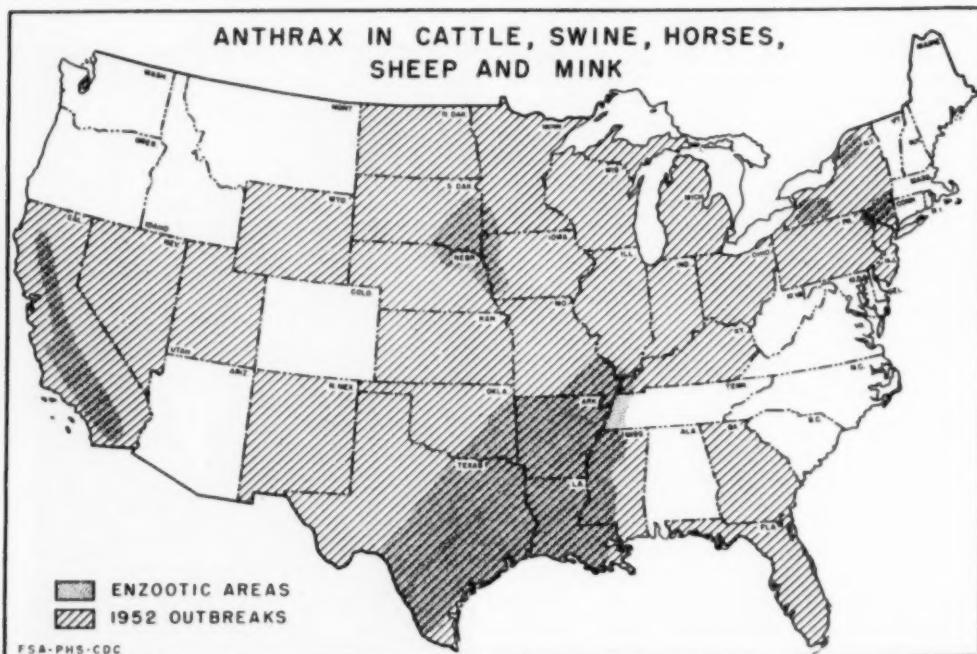
### Anthrax in Florida

Because anthrax had appeared in several areas in Florida, Dr. L. Leonpacer, an experienced practitioner from Lafayette, La., was invited to speak at a special meeting there. He stated: (1) that the anthrax spores may be spread in rice bran, which is used in commercial feeds; (2) that the biological products used in controlling the disease must be as strong as the infection which is present in a given area; (3) that this may vary on neighboring farms; (4)

that in Louisiana, the disease has been successfully controlled with spore vaccine, even in milk cows, and the milk is consumed without restrictions; (5) that cattle imported into Louisiana must be vaccinated at once but the native cattle are quite resistant to anthrax; and (6) that newborn calves seem to be protected for several months by an inherited resistance.

### Coccidiosis Vaccine

The value of the recently publicized cecal coccidiosis vaccine, which is administered to day-old chicks in feed, is questioned. Cecal coccidiosis is only one of the types of coccidiosis that infects chickens and is being controlled quite satisfactorily with sanitation and the feeding of anti-coccidiosis drugs. Furthermore, since many chickens, in some areas, are being immunized against Newcastle disease when 1 day old, it would not be advisable to mix sporulated oocysts in their feed at the same time.—*University of Rhode Island, Sept., 1952.*



—U.S. Bureau of Animal Industry and Public Health Service

Fig. 1—Map showing where anthrax has been enzootic for years and where it occurred sporadically in 1952 and in late 1951.

### Anorexia in a Chinchilla

WALTER HAUSER, D.D.S., and  
IRENE KRAFT, D.V.M.

White Plains, New York

Six months ago, a young chinchilla showed symptoms of anorexia and some slight salivation. Examination of the molars was indicated. This was effected by intravenous nembutal anesthesia, using the ear vein and a 25-gauge needle.

The mouth was examined with an otoscope (largest cone) and no abnormality was noted. X-ray examination was negative. However, on lateral movement of the jaws tripping was felt as in the molars of a horse. On further careful examination through the otoscope, sharp spurs were noticed at the buccal margins of the rear

Dr. Hauser is a dentist and Dr. Kraft a veterinary practitioner in White Plains, N. Y.

molars due to uneven wear of the enamel.

Using the otoscope as a speculum, the ridges were ground down with a fine dental grinding wheel. Symptoms disappeared immediately and had not recurred six months later.

### Benzethacil—A New Penicillin

The search for a form of penicillin which will be slowly absorbed and, therefore, effective for a long period has brought forth benzethacil. A single intramuscular dose of 300,000 units in dogs resulted in effective serum penicillin levels for eight to fifteen days as compared to similar levels for only twelve to twenty-four hours when potassium penicillin G or procaine penicillin G were used. A single intramuscular dose of 1,500,000 of benzethacil to cattle is said to result in effective blood serum penicillin levels for six to nine days.—*Cornell Vet.*, Oct., 1952.

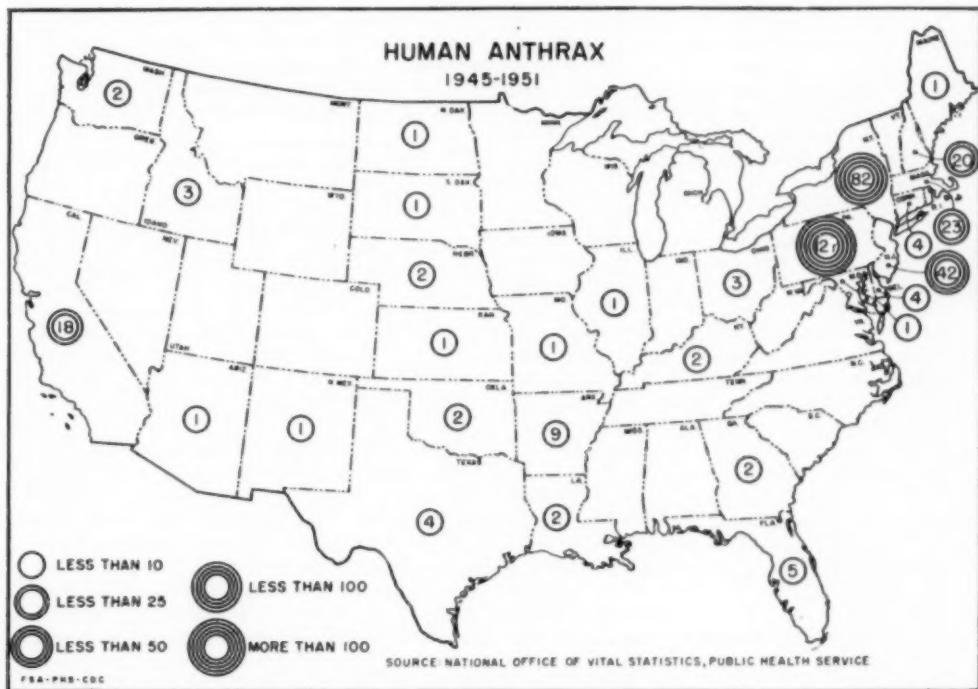


Fig. 2—Map showing the incidence of anthrax, mostly industrial, in man in the seven-year period prior to 1952.

—U. S. Bureau of Animal Industry and Public Health

## Postmortem Condemnations Resulting from Migratory Ascarids in Hogs

CHARLES J. PRCHAL, D.V.M.

Phoenix, Arizona

OBSERVATIONS of numerous shipments of midwestern hogs received at a federally inspected slaughtering establishment in Phoenix, Ariz., during the past four years revealed many animals discharging adult ascarids in fecal material. Further examination of infested animals failed to demonstrate any clinical symptoms and all evidence of heavy parasitism or unthriftness was lacking. The shipments originated in Iowa, Illinois, Nebraska, Missouri, and Kansas and were enroute three to seven days.

The normal habitat for the adult intestinal roundworm (*Ascaris lumbricoides* var. *suis*) is in the small intestine; but at post-mortem examination they are frequently seen to have migrated into the main bile duct, the gall bladder, the bile ducts of the liver and, less often, into the pancreatic duct and the pancreas. The number that have migrated to these areas and the duration of their presence is in direct relationship to the degree of impairment of normal hepatic and pancreatic functions.

### PATHEOLOGY OBSERVED

The main bile duct, possibly because of its large lumen and accessible opening into the intestine, is frequently invaded by the adult roundworm. With the presence of the parasites, the duct becomes distended, usually contains a mucoid appearing substance, and varying degrees of cholangitis are noted. At times, a pressure necrosis of the duct wall is present, usually accompanied by a marked serous infiltration of surrounding adipose tissue. As many as 14 adult ascarids have been found occluding the lumen of a distended bile duct.

Cholecystitis is commonly observed with the presence of the roundworm in either the gall bladder, main bile duct, or in the bile ducts within the liver. The walls of the gall bladder are thickened and its superficial blood vessels engorged. On incision

of the bladder, the content is found to have a dirty brown color and dead ascarids are usually present.

The ducts within the liver have been observed to contain many migratory ascarids. The ducts become prominently distended and are noticeable on the medial surface of the organ. On incision into a distended duct, a mucopurulent material oozes from the duct and the roundworms are usually present.

Hepatitis is commonly associated with invading parasites of the bile ducts within the liver. The liver becomes swollen, dark red, and presents distended ducts on its medial surface. The lymph nodes are enlarged and may be edematous, and edema of the tissues at its hilus is frequently seen. The microscopic picture of the inflammatory process in a submitted specimen is described by Dr. Charles L. Davis of the Bureau of Animal Industry Pathological Laboratory, Denver, Colo., as follows:

Sections show marked inflammatory changes in the bile ducts, the portal canals and to a less extent in the interlobular spaces. The larger bile ducts are distended with an inspissated substance containing some bacterial forms while many of the smaller bile ducts are filled with polynuclear cells, lymphocytes, plasma cells, mononuclear cells and eosinophiles, but occasionally polymorphonuclear cells are most abundant giving the picture of small abscesses. While no parasites are seen in the periphery of the liver, the extension of the cholangitis to the peripheral bile ducts is quite apparent.

Wandering ascarids have been observed in the pancreatic duct and in smaller ducts within the pancreas. No gross pathology, as described affecting the bile duct, has been noticed in the pancreatic duct. However, when the roundworms were found to have migrated into the ducts within the pancreas a definite inflammatory process became evident. Various areas of necrosis, appearing as small white masses, are visible on its surface. The gland becomes enlarged and pancreatic juice can be seen beneath the capsule and within its structure. Edema

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of surrounding adipose tissue usually accompanies an affected gland. The microscopic picture is described by Dr. Davis:

Sections from different areas of the pancreas show ascarids within several of the larger ducts. The intrapancreatic adipose tissue shows a variable degree of necrosis. The parenchymal tissue shows no alteration although in one section there are several foci of polymorphonuclear leucocytes. The fat necrosis probably resulted from the action of escaped pancreatic juice.

The consequences of plugged biliary ducts, accompanied with cholangitis or hepatitis, many times results in the presence of bilirubin in the blood and a deposition of the bile pigments throughout the tissues of the body. The resulting icterus is most pronounced in the eyes, skin, fatty tissues, and in the synovial fluid of the large joints. It varies in intensity from a light yellow to a greenish yellow. The color variance undoubtedly is dependent upon the duration and extent of the impairment of the normal bile flow. The mechanical plugging of the ducts, accompanied by inflammatory changes of the tissues, restricts or even stops the flow of bile into the intestine. When it is recalled that 2 to 5 oz. of bile flows through the ducts each hour in a normal, 1-year-old hog, a definite variance

of discoloration of body tissues is to be expected.

#### ICTERIC INDEX

Quantitative analysis\* of serum was made of several normal and icteric carcasses. Using van den Bergh's test, serum from normal hogs showed negative readings on the direct test, and as high as 0.58 mg. of bilirubin per 100 cc. of serum on the indirect test. Carcasses appearing to be moderately discolored were found to have 2.6 mg. of bilirubin per 100 cc. of serum on the direct test and 3.82 mg. on the indirect tests. Carcasses which would be classed as intensely discolored disclosed 3.4 mg. of bilirubin on the direct test and 4.6 of bilirubin on the indirect tests. Those carcasses appearing to have a greenish yellow discoloration showed 3.64 mg. of bilirubin on the direct test and 6.04 of bilirubin on the indirect test. These figures represent an average of numerous tests made.

#### NUMBER OF ANIMALS AFFECTED—DISPOSITIONS

Because of the presence of the roundworm and the resulting extension of the

\*Quantitative analysis of serums made by Dr. J. D. Barger (M.D.), Good Samaritan Hospital, Phoenix, Ariz.

TABLE I—Number of Livers Infested with Ascarids and Number of Icteric Hog Carcasses Observed March, 1948, to April, 1952

	1948		1949		1950		1951		1952		Totals	
	icteric carcasses	infested livers										
January			26	275	13	287	3	116	4	126	46	804
February			25	213	8	232	19	104	13	120	65	669
March	8	63	41	329	35	411	24	239	10	176	118	1,218
April	29	182	35	346	29	355	8	226	20	189	121	1,298
May	17	148	12	142	16	273	11	348			56	911
June	13	133	3	103	11	137	6	210			33	583
July	1	29	0	10	3	80	2	74			6	193
August	0	19	0	3	1	30	0	85			1	137
September	2	41	0	2	3	31	0	90			5	164
October	2	29	0	63	1	72	0	63			5	227
November	10	108	4	208	0	167	8	169			22	652
December	10	226	10	350	9	210	6	206			33	992
Totals	92	978	156	2,044	129	2,285	87	1,930	47	611	511	7,848

cholangitis of the biliary ducts within the liver, the organ is judged unfit for food. Carcasses which have become jaundiced are likewise judged unfit for food. Table 1 records the number of livers found infected with roundworms and the number of carcasses found to be icteric during a period of four years.

#### CAUSES FOR MIGRATIONS

Heavy infestations and febrile disturbances are commonly mentioned in various textbooks as causes for the ascarid to migrate from the small intestine. In our findings, we have not noticed unthriftiness, which sometimes is associated with extensive parasitism, or animals with abnormally high temperatures. Postmortem examinations revealed many icteric animals showing only a few roundworms remaining in the intestinal tract, a goodly number in the biliary ducts, and at times some have been found in the stomach. The stomachs of many icteric animals were found devoid of food and water. From these observations, it was concluded that inadequate feeding of infected animals during long shipments will cause ascarids to migrate from their normal habitat. This causative factor has been given considerable thought especially from the standpoint of a probable variance in the acid concentration of stomach juices and its effect on the usual location of the parasite. Evidence supporting the theory that insufficient amount of feed while in transit is a cause for the migrations can be drawn from a shipment which was received in February, 1951. In tracing this car of 131 hogs from Kansas City, Kan., information made available from the transporting company showed that the animals had been fed 50 lb. of corn per deck (double decked car) in Clovis, N. M., and 100 lb. of corn per deck in Ashfork, Ariz. The unusual routing of the car and the small amount of feed given was due to strike conditions affecting the carrier. The animals were slaughtered the day following arrival, and on postmortem examination 8 carcasses were found to be icteric because their bile ducts were engorged with roundworms. Ascarids were also found in bile ducts of 26 other animals. Other instances of delayed shipments and instances where insufficient amount of feed had been given animals in transit also revealed a high percentage of icteric carcasses and parasitized bile ducts.

The feeding of a minimum of 200 lb. of grain per deck (approximately 65 hogs) at regular feeding, watering, and resting stations may prove to be a factor in lowering the incidence of roundworm migrations.

#### SUMMARY

Hogs from the midwestern states are commonly found infected with ascarids.

Migrations of adult ascarids into the bile and pancreatic ducts and the resulting pathology is described.

Number of livers found infected by the migratory ascarid and number of icteric carcasses observed during postmortem examinations during a period of four years is presented.

The migration of ascarids into the bile ducts of swine with resultant icterus is the cause for considerable loss to the meat packers in this country.

It would appear from limited observations that the migration of ascarids into the liver is more likely to occur under conditions of long hauls and inadequate feeding during shipment from farms to slaughtering establishments.

A feeding practice of a minimum of 200 lb. of grain per deck at regular feeding, watering, and resting stations may be a factor in lowering the incidence of roundworm migrations, thereby reducing condemnations for icterus.

#### Local Heat Applications for Horses

An electrically heated boot may be used for applying either dry or moist heat to the flexor tendons of the horse. It is safe and easy to apply. As compared with hot fomentations and kaolin poultices, it has the advantages of (a) slow and comfortable elevation to the optimum temperature for vasodilation and for relief of pain at the sensory nerve endings; (b) constant temperature at the most favorable level; and (c) slow and comfortable decrease in temperature when the current is shut off.—*Vet. Rec.*, Oct. 4, 1952.—R. C. K.

*Leptospirosis in Horses.*—Of 124 horses admitted to the Hanover clinic, 58 were positive, 22 suspicious, and 44 doubtful to the agglutination-lysis test for leptospirosis. None were totally negative. They reacted to five different types of Leptospira.—*Vet. Bull.*, Oct., 1952.

## Infectious Anemia in Cats

JEAN C. FLINT, D.V.M., M.S., and LLOYD C. MOSS, B.Sc., D.V.M.

Fort Collins, Colorado

RECENT REPORTS of "Anaplasma-like" diseases in swine,<sup>1</sup> and in cattle<sup>2</sup> and sheep<sup>3</sup> suggest the possibility of a similar condition occurring in other animals.

The following is presented as a case report and a summary of some preliminary experimental work which was done with cats at the School of Veterinary Medicine, Colorado A. & M. College.

### CASE REPORT

A male cat, 4 years old, was brought to the school clinic for treatment of an abscess in the neck region and because the animal had also shown debility and anorexia over a period of several months.

A routine blood smear disclosed small, round bodies on, and apparently attached to, the red blood cells, which were similar in appearance to *Anaplasma marginale* in cattle except that they were not all peripheral in distribution (see fig. 1).

The Wright-stained smear showed marked anisocytosis, poikilocytosis, and many normoblasts. The red cell count was down to 500,000, with a leukocytic count of 45,450. The temperature was 103 F.; pulse, 160; respiration, 55; urinalysis, normal.

In the next eleven days, the patient received two blood transfusions and was treated with large doses of penicillin, liver extract, and vitamins. Considerable improvement was noted by this time (table 1). The patient was given a third blood transfusion and discharged on the eighteenth day. Two months later, the owner reported the animal to be in excellent health.

### EXPERIMENTAL WORK

Personnel, funds, and animals were not available to carry on adequate investigation of the condition found in this cat, but an attempt was made to keep the etiological agent alive and to see if it could be transmitted.

Dr. Flint is a practitioner in Salt Lake City, Utah; Dr. Moss is professor and head, Department of Medicine, School of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo.

The assistance of the following members of the faculty of the School of Veterinary Medicine, Colorado A. & M. College, is gratefully acknowledged: Drs. Rue Jensen, Lynn A. Griner, and Maxine Benjamin.

Attempts to culture the etiological agent on ordinary laboratory mediums failed. Two young cats of unknown history, but with normal blood pictures and in apparent good health, were each

TABLE 1—Blood Picture in Feline Clinical Case

	1st day	2nd day	11th day
Hemoglobin	Less than 2 Gm.	6 Gm.	7 Gm.
Red cells	500,000	1,240,000	2,480,000
Total leukocytes	45,450	62,650	12,050
Neutrophils:			
segmented	14	20	47
bands	19	7	7
Lymphocytes	64	69	44
Monocytes	3	4	2

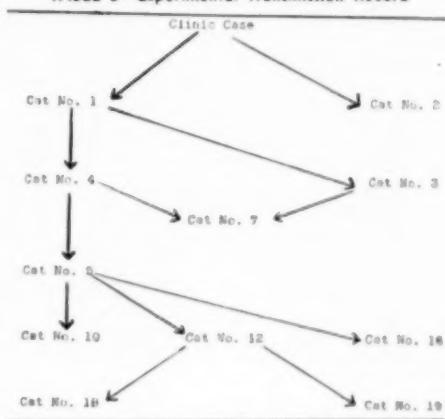
inoculated intraperitoneally with 1 ml. of blood drawn from the original patient. Four days later, 1 of these cats was splenectomized and the other one kept as a control.

Within twenty-four days, the nonsplenectomized cat was dead, and the splenectomized cat was showing numerous "bodies" on (or attached to) the red blood cells. This animal was given no treatment of any kind and died on the thirty-first day postinjection.

Nineteen cats were injected intraperitoneally during the course of the experiment. In those showing a "take," the bodies appeared on the red blood cells in eighteen to twenty-one days, on the average, and the animals usually died within thirty to thirty-three days.

One-half milliliter of noncitrated blood, injected intraperitoneally, was adequate for transmission, and in a number of cases it was found that citrated

TABLE 2—Experimental Transmission Record



blood which had been frozen for two weeks was still infective.

The bodies could not always be found every day once they had shown in the blood stream. This was particularly true at the beginning and toward the end of the eighteenth to thirty-third day period. It was not uncommon to find the bodies on the eighteenth or nineteenth day and then not be able to demonstrate them again until the twenty-second or twenty-third day. Often they could not be demonstrated on the last day or two prior to death.

Table 2 shows the transmission course.

The postmortem findings were essentially negative. There was no icterus or hemoglobinuria. Unfortunately, bone marrow studies were not done.

TABLE 3—Experimental Infectious Anemia in Cats

Cat No.	Days until positive	Days lived	w.b.c. count on positive date	Lowest r.b.c. count
1	24 (?)	32	28,000	1,000,000
2	18 (splenX)	21	5,300	1,500,000
3	30 (splenX)	32	12,500	320,000
4	18	34	4,500	350,000
5	18	34	10,400	3,570,000
7	18	24	13,900	5,100,000
10	20	31	12,500	6,390,000
12	18	34	11,100	3,180,000
16	21	31	20,000	6,090,000
18	15 (splenX)	18	17,750	2,100,000
19	13	*	16,500	5,890,000

\*Killed on the twentieth day and blood saved.

Histopathological lesions were also minimal and were not constant in all animals, aside from a chronic passive congestion of the liver which was interpreted as a terminal change.

## DISCUSSION

The nature of the etiological agent is unknown. No injections of blood or urine filtrates were attempted, unfortunately.

The work of Splitter<sup>1</sup> in hogs, Lotze<sup>2</sup> in cattle, and Jensen<sup>3</sup> in sheep, suggest the possibility of it being an Eperythrozooon, while that of Foote, Brock, and Gallaher<sup>4</sup> indicates the need for viral studies.

Splenectomy did not appear to have a very pronounced effect on the course of the disease in cats and this is contrary to the findings in eperythrozoosisis of other animals.

The bodies were pleomorphic, appearing sometimes as small, round, solid bodies, sometimes as small rings, commas, tennis-raquets, or short rods. They could be seen in the plasma at the height of the infection and often appeared to be clinging to the outside of the cells.

There was some evidence that penicillin was effective in checking the course of the disease and this has been borne out in two subsequent clinical cases treated by one of the authors. The number of cases treated, however, is too small to give significance to this line of therapy.

Experimental work was hampered by the difficulty of keeping the animals free of infectious feline panleukopenia. Two injections of tissue vaccine gave good results in

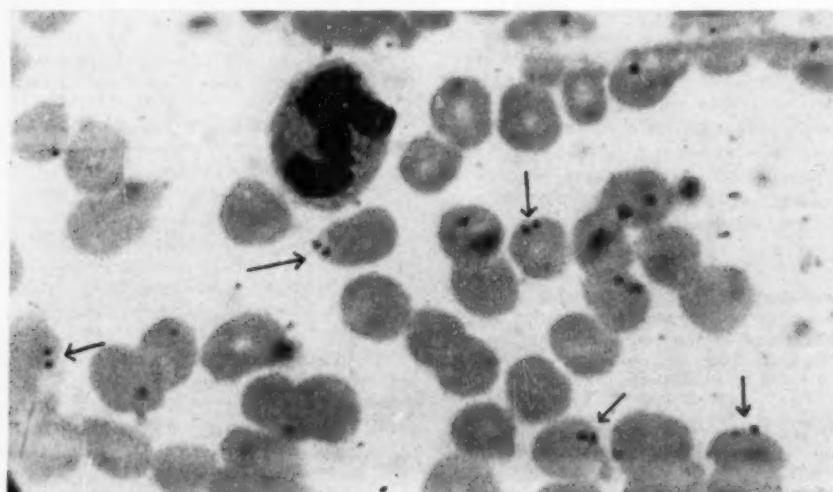


Fig. 1—Blood from cat 1 (table 2). Arrows indicate bodies on red cells.

immunizing the cats against panleukopenia, as a rule, but in a number of cases they "broke" when the anemia became most pronounced. Animals exhibiting low white counts and other symptoms of panleukopenia were not included in the above data, even though their blood smears showed typical bodies.

The ease with which Jensen<sup>3</sup> was able to find *Eperythrozoon* organisms in the pooled blood of apparently normal cattle and sheep suggests that possibly the same could be done with the pooled blood of cats.

Several months following the discovery of the clinical case previously reported, a mature cat was obtained for use as a blood donor. The cat was apparently normal and was believed to be immune to feline infectious panleukopenia; it was exposed to the disease repeatedly and remained in good health.

Two kittens which were suffering with infectious feline panleukopenia, confirmed by blood counts, were given blood intraperitoneally from this cat. Both kittens seemed to make a satisfactory recovery from panleukopenia and were discharged from the hospital. One kitten was returned eighteen days following the blood transfusion it had received from the donor cat. Blood smears confirmed the diagnosis of the infectious anemia which was apparently the same organism as observed in the cat reported in case 1. This kitten died four days following admission.

The second kitten was presented twenty days following the blood transfusion with essentially the same symptoms as the previous kitten. Smears were checked and the same bodies were found on the red cells as previously described.

Three other cats were inoculated with blood from the donor cat. Blood smears were checked on the donor cat after it was discovered that its blood was capable of transmitting the disease. We were unable to demonstrate the bodies on repeated examinations. Three additional animals were inoculated with blood from the donor cat; in all cases the disease was reproduced. The incubation period ranged from eighteen to twenty-one days. The donor cat was killed following the observations.

Several stained slides obtained from various cases were sent to David Weinman, M.D., who is associated with the Department of Bacteriology of the Yale University

School of Medicine, New Haven, Conn., and is well known for his extensive investigations with *Bartonella* and other blood parasites.<sup>5</sup>

The following is from the letter which was received from him:

The disease in cats which you wrote me about is extremely interesting. The slides arrived today. I have looked at them, and the bodies on the red cells are undoubtedly parasites. From their appearance I would judge that they were either *Haemobartonella* or *Eperythrozoon*, or—third possibility—perhaps a mixed infection. A choice between these possibilities can not be made on the basis of morphology in these slides.

I am very much interested in this disease and should like to learn more about it as your knowledge develops. It is rather unusual for organisms of the groups stated to become patent in such large numbers and to produce disease without splenectomy, although this is known for some species. If the disease passes into latency, it might be of considerable interest to see what the results of splenectomy would be. Also, splenectomy of "normal" animals might give a more correct idea of the incidence of infection than any other method.

#### SUMMARY

A report is given of a clinical case in which there was marked anemia in a cat, associated with the presence of "Anaplasma-like" bodies on, or attached to, the red blood cells.

Experimentally, it was found possible to reproduce the condition with 0.5 ml. of blood injected intraperitoneally. On the average, it took about eighteen to twenty-one days for the bodies to appear in the blood stream and death occurred in untreated cases in thirty-one to thirty-four days. Citrated blood was infective after being frozen for fourteen days. Aside from the marked anemia, postmortem findings, gross and microscopic, were essentially negative.

There is need for further investigation of the disease in cats, with special attention to studies of the bone marrow and the possibility of reproducing the disease by means of urine and/or blood filtrates.

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- ^Lotze, John C., and Yengst, Marvin J.: Epery-

throzoosnosis in Cattle in the United States. North Am. Vet., 22, (1941): 345-346.

<sup>1</sup>Jensen, Rue: Eperythrozoosnosis in Cattle and Sheep of Louisiana, Preliminary Report. Louisiana Bull. No. 366, (1943): 8.

<sup>2</sup>Foote, Lon E., Brock, W. E., and Gallagher, Barbara: Ictero-Anemia, Eperythrozoosnosis, or Anaplasma-like Disease of Swine Proved to be Caused by a Filterable Virus. North Am. Vet., 32, (1951): 17-23.

<sup>3</sup>Weinman, David: Infectious Anemias Due to Bartonella and Related Red Cell Parasites. Trans. American Phil. Soc., 33, (1944): 243-350.

**Leptospirosis in a Boy.**—A 15-year-old English boy, ill four weeks, reacted to tests for leptospirosis. His dog, which recently had been ill, yielded *Leptospira canicola*. However, the boy proved to have Weil's disease due to *Leptospira icterohaemorrhagiae*, probably of rat origin. Rats near his home were found to be carriers. This illustrates the possibility of confusion and the need for caution in diagnosis.—*Vet. Bull.*, Oct., 1952.

### Leptospirosis in European Horses

In a study of hypertrophic cirrhosis of the liver in horses, in Germany and Czechoslovakia, a Leptospira was incriminated as the causative agent. Changes in the liver progressed from serous infiltration to its final chronic cirrhotic state. There was no enlargement of the spleen. The terminal staggering of a patient is apparently caused not by encephalitis but by deranged sugar metabolism or a "purpura" of the brain.—*Vet. Bull.*, Sept., 1952.

**Canine Leptospirosis in Greece.**—Canine leptospirosis has been verified for the first time in Greece. Two cases are described (*Bull. Soc. Vét. Hellénique*, April-June, 1952), one on the Isle of Mytilène and the other in Athens.

**Brucella abortus** has not been recovered from swine in Iowa and only in rare instances elsewhere.—*A. B. Hoerlein, D.V.M., Iowa State College.*



The basic sanitation code for poultry processing, which public health officials are preparing as a suggested guide for cities and states, was thoroughly reviewed at the second meeting of the liaison public health industry group, held in Chicago on Oct. 28, 1952.

Representatives attending the meeting are (seated, left to right)—J. O. Parker, Dr. W. H. Haskell, Dr. Cliff D. Carpenter, Dr. James H. Steele, Ray E. Firestone, T. E. Sullivan; (standing, left to right)—Dr. Carl H. Koonz, Dr. R. K. Anderson, Dr. Joseph Atkinson, Dr. James Lieberman, Dr. Raymond Helwig. Five of the group are from industry and six from government.

## Actinomycosis of a Bovine Testis

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IT IS NOW generally accepted that certain forms of the actinomycetes, the anaerobic and aerobic forms, may cause disease in man and his animals. As pointed out by Waksman,<sup>4</sup> the specific nature of the organisms that are capable of causing actinomycotic infections in man and animals has aroused considerable discussion and has resulted in much confusion in the classification of these microorganisms.

An extensive amount of literature has accumulated on the etiology of infections caused by actinomycetes. These are usually grouped under the anaerobic and aerobic types. No attempt will be made to review the literature available on the actinomycetes as causative agents of human and animal diseases. This has been ably accomplished by Waksman.<sup>4</sup> However, it is the purpose of this paper to present findings of an unusual case of animal actinomycosis.

### CASE REPORT

A young Hereford bull received an injury on the right side of the scrotum, which appeared to be merely a laceration of the skin. However, the wound did not respond to the usual treatment and failed to heal. Following a period of about ten days, the laceration appeared inflamed; the right testis became exposed and also showed some evidence of having been punctured by a sharp object. This testis, which was inflamed, was then removed and the wound closed by a suture; large doses of sulfadiazine were administered. Following this operation, the wound healed quickly and satisfactorily.\*

This bull was considered a valuable animal and all possible attempts were made to save him for breeding purposes. Since artificial insemination was common practice on the ranch, some of the semen was collected from an ejaculation and sent to the laboratory for examination for the presence of spermatozoa. This occurred about a month following the unilateral castration, and there was no indication of any infec-

tion of the animal's genital organs. Examination of the semen under the microscope failed to disclose the presence of any spermatozoa. Smears were then made and stained with Gram's stain. Staining of the smear revealed the presence of fine branching, gram-positive mycelium resembling that of the actinomycetes. Sulfur granules could not be observed. Staining of the material also failed to show the presence of any spermatozoa.

Some of the semen was then transferred to blood agar plates and thioglycollate broth, and incubated at 37 C. The organisms grew readily on the thioglycollate under anaerobic conditions but made a very slow growth on the blood agar medium in the presence of oxygen. The organism was then transferred to peptone medium and Sabouraud's dextrose agar. It failed to grow completely on Sabouraud's agar, but grew rather slowly on the peptone medium. The peptone medium slants turned black, as the organism continued to grow slowly. The colonies had a leathery, wrinkled appearance when first isolated. However, following several transfers, this leathery texture disappeared and the hyphae would break up into short fragments of crooked, and sometimes branching, diphtheroid elements and arthrospore formations.

### DISCUSSION

This characteristic of certain forms of the actinomycetes has been described by Henrici<sup>5</sup>, and he also pointed out that some species of actinomycetes may at least temporarily fail to form mycelium and grow entirely in a bacteria-like form.

The collection of semen under strictly sterile conditions is difficult, and since the actinomycetes are usually prevalent in the soil and barnyard surroundings, the question of possible contamination arises and the possibility that this actinomycete was merely a contaminant. However, in view of the fact that the semen was examined immediately following collection for the presence of sperm and then placed in the refrigerator for future use, at least partially eliminates this organism as being a contaminant. A small quantity of penicillin

Dr. Bieberdorf is a mycologist with the Southwest Foundation for Research and Education, San Antonio, Texas.

\*All surgery was performed by Dr. Paul Keesee, D.V.M., manager of Essar Ranch.

was also added to inhibit bacterial growth, but apparently was not of sufficient potency to kill all of the organisms. It appears unlikely that an actinomycete would make much growth under these refrigerated conditions.

When the actinomycete lost its typical filamentous structure and fragmented, it was believed that bacterial contamination had occurred. However, in the stained preparation, deeply stained granules were demonstrated which correspond to those demonstrated by Henrici<sup>3</sup> in some of the actinomycetes. The organism was transferred to several different types of mediums and observed over a long growth period. It failed to revert back to its original leathery type of growth, but it did produce the typical black color in the various mediums.

#### CONCLUSION

An organism isolated from the semen of a Hereford bull was probably a strain of *Actinomyces bovis*. It made a relatively rapid growth under anaerobic conditions in thioglycollate medium and grew very slowly aerobically. Identification of this actinomycete was made entirely from a morphological standpoint.

According to Emmons<sup>1,2</sup> and others, numerous actinomycetes may be isolated readily from human and animal lesions, including the teeth and tonsils. It is most likely that this infection was a direct result of the injury the animal had received, since the open wound had been subject to infection by bacteria and other microorganisms. The importance of the actinomycetes as pathogens is frequently questioned; however, under certain conditions some of them may become significant, since it rendered this particular animal useless.

#### References

<sup>1</sup>Emmons, C. W.: Microaerophilic strains of *Actinomyces* Isolated from Tonsils. *Mycologia*, 29, (1937): 377-382.

<sup>2</sup>Emmons, C. W.: The isolation of (*Actinomyces bovis*) from Tonsilar Granules. *Pub. Health Rep.*, 53, (1938): 1967-1975.

<sup>3</sup>Henrici, Arthur T.: Molds, Yeasts, and Actinomycetes. Revised by Charles E. Skinner, Chester W. Emmons, and Henry M. Tsuchiya. John Wiley and Sons, Inc., New York.

<sup>4</sup>Waksman, Selman A.: The Actinomycetes, Their Nature, Occurrence, Activities and Importance. Chronica Botanica Company, Waltham, Mass., 1950.

#### Hog Raisers Take Steps to Solve Disease Problems

A National Swine Health Research Foundation, designed to get the kind and quality of research needed for profitable swine production, has been proposed by a group of Indiana swine producers. Following is a condensation of their appraisal of the situation in the *Prairie Farmer* (Oct. 18, 1952):

Great strides have been made in swine nutrition. Problems of management and sanitation have been studied, and practices improved yet close to 40 per cent of all pigs farrowed never reach market.

The most neglected problem is swine diseases. Outbreaks of anthrax seem under control, but the spores have been seeded and will be a threat for a long time. Vesicular exanthema not yet conquered might easily have reached epidemic proportions. Infectious atrophic rhinitis often causes the producer to clean up and start over. Then hog cholera vaccination and treatment add approximately a dollar per head in production cost because we have chosen to live with this disease instead of eliminating it.

It has become common to cry for state and federal aid to cure all our troubles. Whose business is it anyway?

Directors of the foundation would be elected by producers of each state where the plan is in operation. Farmers indicate they are willing to have a penny per animal taken off their hog checks at the market place. The funds could be collected on a per head basis through commission companies, packers, and purebred associations.

#### Effect of Chloromycetin on Dogs

Since chloromycetin<sup>®</sup> (chloramphenicol) has in several instances been recorded as causing a fatal aplastic anemia in man, its possible toxic effect on dogs has been reviewed. Doses of 50 to 200 mg. per kilogram have, in three experiments, been given orally or intramuscularly once or twice daily for periods of from one to four months without any evidence of injury to the hematopoietic system of these dogs.—*J. Small Anim. Med.*, Sept., 1952.

*Aujeszky's Disease in Cats.*—Four cats developed Aujeszky's disease after having been fed raw meat from a refrigerated carcass of a dead pig. The pig was thought to have died with swine fever (hog cholera). Aujeszky's disease had not been previously reported in Sardinia.—*Vet. Bull.*, Sept., 1952.

## The Associated Serum Producers' Public Relations Program for 1953

The year 1953 promises to be a peak year in the advancement of public relations for the veterinary profession, according to final plans for the coming year's activity just announced by the Associated Serum Producers.

The association which sponsors the American Foundation for Animal Health has just voted one of the largest budgets in its history for continuing its nationwide public relations campaign on behalf of the profession during 1953. The campaign will run continuously and will cover every state in the union.

Highlights of the program include the following:

**Newspaper Publicity.**—Two news releases per month to 3,500 newspapers, plus a series of question and answer columns on animal health topics twice per month.

**Farm Magazines.**—A series of educational advertisements about animal disease hazards and the value of veterinary service, throughout the year in 13 farm journals which reach over 6 million readers per issue.

Over and above this, a special campaign of paid advertising on the importance of having swine vaccinated against cholera and the advantage of having the vaccinating done by a veterinarian will be released both in the spring and fall in 16 farm journals.

**Radio.**—Over 400 radio stations will be served continuously throughout the year with timely bulletins and news items on animal disease problems, stressing the value of veterinary service. In addition, a special campaign will be launched in the spring to urge farmers to have their swine vaccinated against hog cholera, using 17 radio stations in the corn-hog belt.

**Movies.**—The film "Valiant Years" portraying the work of a typical veterinarian in his community will be shown to nearly 3,000 audiences throughout the nation during 1953. This film has already been viewed by more than 1 million persons.

The association is also working on plans for a special project for seniors in veterinary colleges, details of which are to be announced shortly.

This is the sixteenth year in which Associated Serum Producers has sponsored its public relations campaign on behalf of the

veterinary profession. The basic objectives of the campaign are: (1) to make animal owners more alert to disease hazards; (2) to educate owners to the value of modern veterinary medical service in preventing animal disease losses; (3) to familiarize the public with the contribution the profession makes to general health and the nation's welfare and economy; and (4) to offset the efforts of other interests which seek to lead animal owners into channels of lay medication.

Member companies of American Serum Producers who have pledged to underwrite the costs of the 1953 campaign are: Allied Laboratories, Inc.; Blue Cross Serum Co.; Corn Belt Laboratories, Inc.; Fort Dodge Laboratories, Inc.; Grain Belt Supply Co.; Jensen-Salsbury Laboratories, Inc.; Liberty Laboratories; Missouri Valley Serum Co.; Norden Laboratories; Pitman-Moore Co.; Sioux City Serum Co.; Sioux Falls Serum Co.; The Columbus Serum Co.; The Corn States Serum Co.; The Gregory Laboratory, Inc.; The National Laboratories Corp.; The Royal Serum Co.; The Southwestern Serum Co., and The United Serum Co.

## Enhanced Chlorination

The antiseptic effectiveness of chlorine and chlorinating compounds is reduced by a number of factors, including the presence of organic material such as proteins or soapy water. It is suggested that this can be counteracted and the bactericidal activity of chlorinating compounds, such as hypochlorite or chloramine T, can be markedly enhanced in such cases by suitable concentrations of ammonium ion. The ammonium ion probably exercises a buffer action which tends to prevent chlorine from being inactivated by organic materials. This ion may be supplied by the chloride, sulfate, nitrate, or phosphate salts of ammonium. It is possible to incorporate ammonium salts, chlorine compound, and a detergent in a single mixture for use in cleaning and sterilizing food utensils, dairy equipment, laundering, and for certain aspects of water and sewer treatment.—*Canad. J. Pub. Health, Sept., 1952.*

Parabis 90 at the rate of 3.5 lb. to a ton of feed (2.5 oz. per 100 lb.) is effective against blackhead in turkeys.—*H. E. Moses, D.V.M., Purdue University, Lafayette, Ind.*

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# NUTRITION

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## Plant Vitamins and Environment

A study of the influence of environment on the vitamin content of growing plants has been made. The study was confined to the B complex vitamins—thiamine, riboflavin, niacinic acid, and pantothenic acid—in the stems and leaves. Plants which grow best in warm weather, such as tomatoes and beans, developed more vitamins at high temperatures. Plants which grow better in cooler weather, such as cabbage and spinach, tend to have higher vitamin content at lower temperatures. Affected by the season were the thiamine and riboflavin contents of wheat, oats, and corn; the niacin content of corn and oats; and the pantothenic acid content of corn. Among fertilizers, phosphorus increased the thiamine content, nitrates increased the niacin, while the two in combination increased the pantothenic acid content of wheat. In a dry season, or when phosphates are used, the thiamine content of corn is decreased. Wheat contained more riboflavin in a normal year than in a wet year, while just the reverse was true of oats. This information may be useful when selecting rations which will furnish a high vitamin content.—*Bull. Kansas V. M. A., Oct., 1952.*

## Swine Nutrition Discoveries

Amino acids can be balanced in purified rations so that pigs will make normal growth on a total of 11.3 per cent protein. Such a procedure is not economically feasible today, but the work indicates that recommendations may be lowered considerably from the present range of 16 to 20 per cent. In fact, the National Research Council is advocating a downward revision of 2 per cent of its present recommendations, when proteins from certain sources are balanced as recommended.

Vitamin B<sub>12</sub> increased the growth, improved the appetite, and permitted the red blood corpuscles to function more effectively. Adding as little as 10 µg. to each pound of a corn-soybean meal ration resulted in 44 lb.

more pork at market time in litter mates of equal weight when farrowed.

Detergents, surfactants, or surface-active agents may produce extra growth at about the same rate as antibiotics when added to the ration at the rate of 0.2 per cent.

Antibiotics, when fed to the sow at double the recommended level for growth stimulation, significantly increased the birth weight of young pigs. No harmful effects of any kind have been observed from feeding antibiotics, but depth of back fat is often  $\frac{1}{4}$  in. greater on the carcass of the antibiotic-fed hog, and total carcass fat was somewhat greater. Antibiotics fed in the protein supplement produced maximum results on a much lower intake than the same antibiotics eaten in a finished feed.

Baby pig losses occur most frequently from improper feeding and nutrition of the sow while pregnant and while lactating. The most critical period in the pig's life is that immediately preceding farrowing, rather than immediately afterward.—*Feedstuffs, Nov. 1, 1952.*

## Antibiotics in Dairy Feeds

Cornell University has reported studies on the use of antibiotics in feed for calves and cows. Young calves fed aureomycin tend to grow more rapidly and have less scours and digestive disturbances. Forty pairs of calves were compared. One control calf died. Those on antibiotics gained 22 per cent more rapidly during the first eight weeks. The control calves scoured an average of ten days, those on antibiotics only four days. Antibiotics reduced the amount of feed required by 9 per cent. In some thrifty calves there was no benefit, but antibiotics did benefit the unthrifty.

Six cows were given 100 mg. of aureomycin daily, corresponding to the range of antibiotics used in swine feeds, without affecting their fat-corrected milk production. Cows refused to eat the grains at the 1,000-mg. per day level. The 700-mg. level was fed for ten days with no aureo-

mycin appearing in the milk. Fed at a 500-mg. level for six weeks, it did not affect the cheese-starter activity of the milk.—*Commerce Digest, Nov., 1952.*

### Vitamin B<sub>12</sub> for Children

The effect of vitamin B<sub>12</sub> on school children with growth failure has been studied. When given as a dietary supplement, it apparently does exert a growth-promoting effect. Furthermore, the teachers reported that some of the pupils improved in their behavior, attitude, and school work, showed less strain and fatigue and greater interest. Similar reports came from the parents.—*J. Clin. Nutr., Sept., 1952.*

### Antibiotics for Plant Growth

Antibiotics may prove of value for treating plant diseases, for getting higher seed germination, and for increasing the growth rate of plants. By adding 1 oz. of terramycin to 7,100 gallons of water, the growth rate of sweet corn and other plants was doubled in laboratory tests.—*Farm J., Nov., 1952.*

### Vitamin A Source for Swine

The relative value of vitamin A versus carotene for supplying the vitamin A requirements of sows during gestation was studied. When given to pregnant gilts on a low carotenoid ration, those receiving vitamin A benefited much more than those receiving carotene. The colostrum of the gilt and the liver and serum of the pigs carried much less vitamin when carotene was fed as a supplement.—*J. Anim. Sci., May, 1951.*

Dogs will not eat when they are unable to smell their food, even though they are hungry. If their nasal passages are clogged with discharges, they should be cleansed with saline solution. Their desire for food then is sometimes quite dramatic.—*Southeastern Vet., Summer, 1952.*

Chickens need twice as much water for their weight as do beef cattle, hogs, or horses.—*Farmer's Digest, Nov., 1952.*

### Milk Allergy

In some cases when babies have an allergic gastrointestinal disease, the use of "meat milks" is indicated. If these babies were allergic to cow's milk and did not respond when changed to soybean milk, they often responded to milk in which strained meats, especially lamb, were used. These meat milks are essentially soups.—*Ann. Allergy, Sept.-Oct., 1952.*

Urea, when fed as a protein extender, could be toxic if the animals were starved, then were allowed to eat a quantity of it.—*C. K. Whitehair, D.V.M., University of Illinois.*

Saline solution is contraindicated for a dehydrated dog. It needs plasma or amino acid solutions.—*J. P. Carney, D.V.M., Mississippi.*

**Swine Erysipelas Vaccination.**—In Poland, following simultaneous vaccination with hyperimmune serum and virulent organisms, there was a 3 per cent morbidity rate. When the attenuated vaccine described by Staub was used on 2,000,000 pigs, the morbidity rate was about 1 per cent.—*Vet. Bull., Aug., 1952.*

### California Seeks Veterinarians

California is inviting veterinarians throughout the nation to apply for career positions in the expanding program of its Department of Agriculture. The current need can not be met by California's one school of veterinary medicine. Residence requirements have been waived for these civil service posts.

A degree in veterinary medicine, with or without experience in practice, will qualify for an examination this coming spring. Applications may be filed until April 18, 1953. The test will be given at many out-of-state points.

Salary starts at \$415 monthly and rises to \$505. Work is in field, laboratory, and meat-packing establishments and may involve considerable traveling.

Complete information and official application forms may be obtained from the State Personnel Board, 1015 L St., Sacramento, Calif.

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# EDITORIAL

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## A Brief History of the AVMA Council on Education

The Council on Education of the American Veterinary Medical Association in 1952 completed what might be considered its first full cycle—six years. The Council succeeded the Committee on Education in 1946 and, since each member serves a six-year term, that period may well be considered as a cycle.

Only the American Medical Association has a longer record of continuous supervision of its educational facilities than has the AVMA. The American Medical Association, organized in 1847, set up its Committee on Education in 1848, with the statement that it "considers defective and erroneous every system of medical instruction which does not rest on the basis of practical demonstration and clinical teaching." In 1904, that committee gave way to a five-man Council on Education of the American Medical Association, which has operated continuously since then.

Available AVMA records do not show just when the first committee concerned with veterinary education in America was formed, but it was before 1890. Nor is the number of members on the original committee recorded. It was called The Committee on Intelligence and Education of the United States Veterinary Medical Association, the name borne by the AVMA from 1863 to 1898.

The Committee's 1891 report suggested that, in many ways, veterinary schools were having difficulties similar to those experienced by medical schools thirty to forty years earlier. However, it observed that two medical schools were extending their course in medicine to four years and just twelve years later, one veterinary school did likewise.

During the Committee's deliberations in 1891, more time was taken arguing about swine diseases than in discussing educational problems. Of current interest was the observation that swine plague occurred frequently in swine fed on putrefying, city swill but "if the swill is boiled—they are not troubled with it." Twenty years later, a similar committee report dwelt more on equine population statistics than on educational matters. The Committee's 1901 report indicated progress by commenting that

the days of the empirics were numbered. However, it also indicated that problems existed when it recommended that the subjects of veterinary surgery and medicine should be taught by men with a degree in veterinary medicine, not by medical doctors.

At the turn of the century, five of the 18 schools still were giving a two-year course of six months each but 13 had extended their course to three years of six to nine months each. Only six of the 18 mature schools were state-supported at that time. About 1913, three other state-supported schools joined the 1903 pacesetter by extending their course to four years. By about 1919 all schools, including the eight remaining private schools, were on a four-year basis. The last private school, the United States College of Veterinary Surgeons, closed in 1927.

### AMERICAN MEDICAL ASSOCIATION ESTABLISHED STANDARDS FOR MEDICAL SCHOOLS

One of the first activities undertaken by the American Medical Association's Council on Education had been to launch a survey in 1905 to classify all American medical schools. This proved to be a monumental service, the repercussions of which reached, and still do, into all phases of education. It was undertaken because medical education in the United States was considered then to be "decidedly inferior" to that in England, Germany, and France. Many schools were admitting students without a complete high school education, although five were requiring two years of premedical work. An "ideal standard" for medical schools first was defined, and by 1907 their first classification of schools was published. Of the 160 schools, 82 were placed in class A, 46 in class B, and 32 in class C (probation). Many of the weaker schools soon closed, so that twenty years later there were just half as many. In 1927, 62 schools were placed in class A, three in B, six in C, and nine in D (unapproved). The total enrollment was about the same as in 1905 but the graduates were much better trained.

### AVMA "ESSENTIALS" ADOPTED IN 1921

Following in the A.M.A.'s footsteps, a minimum standard, the "Essentials of an Approved Veterinary College" was adopted

by the AVMA in 1921. It specified that a college should have at least five major departments, each headed by a thoroughly trained veterinarian who should have not less than five years' experience in his subject. In 1928, an amendment to the By-Laws terminated the Committee on Intelligence and Education and created the Committee on Education.

Complete records on the old Committee's membership are available only since 1913. At the time there were five members, each appointed for a one-year term. In 1917, the term of service had been increased to five years with one member being appointed by the president each year. The new Committee was also to consist of five members, each to serve five years, but at least three were to be faculty members and not more than one was to be from any one faculty or school. They were charged with publishing annually the list of schools "recognized by the Association" and "if necessary they shall inspect veterinary colleges from time to time."

By 1932, the AVMA had decided that the veterinary schools should be classified, as medical schools had been, so a two-year notice was given the schools by the Committee. In 1935, the school at the University of Georgia closed leaving 12 schools to be rated. Earlier surveys had been made mostly by questionnaire, except for a few official visits in the later years. However, in 1933-1934 all schools were inspected by one or more members of the Committee. Although twice compiled, this classification which placed only five schools in class A was never published. Both in 1934 and 1935, it precipitated such bitter dissension that the classification was stricken from the report. The plan later was abandoned.

In 1927, the Committee had considered a suggestion that a new name be adopted for our profession. This was chiefly because the root *veterina* means "beast of burden" and such were gradually becoming a minor factor in veterinary practice in America. The terms "zoopathologist" and "animal industryman" were suggested but the Committee finally recommended no change.

With only 13 schools operating, veterinary education in 1927 hit a new numerical low since 1883, when only 123 were graduated. Only 1,040 graduated in the seven years from 1924 to 1930. However, this lack of interest soon changed and in 1937

over 1,000 qualified freshmen applicants were rejected for lack of facilities at the colleges. Except during the late war years, this demand for a veterinary education has continued.

In 1937, Middlesex University, operating under a charter from the state of Massachusetts, announced that it was offering a five-year course in veterinary medicine. In 1939, when it had 21 freshmen and a preveterinary class, it was visited by two committee members whose report indicated that because of serious financial, physical, and clinical inadequacies, it could not hope for approval. The school finally closed in 1947 after two official inspections.

Between 1931 and 1936, all veterinary schools in the United States had extended their course to five years by requiring one year of preprofessional training. These schools, by 1949, all were requiring two years of preprofessional college work.

#### COUNCIL SET UP IN 1945

In 1941, when it was learned that several states were considering the establishment of new veterinary colleges, the "Essentials of an Acceptable Veterinary School" were considerably revised. By 1944, it was evident that demands for matriculation, largely from veterans, were putting tremendous pressure on the existing veterinary schools. Because of their war-depleted staffs and the difficulty in securing qualified teachers, an educational crisis loomed. The teacher problem was being made more acute by several new schools seeking staff personnel. It was proposed, therefore, to set up a council on education with greater authority than had been given to the old committee. Plans for the council were completed, adopted, and published in 1945 (see JOURNAL, May, 1945: 309; also June and July). It became operative in the spring of 1946.

The Council on Education now consists of nine members representing various phases of major veterinary activities. Six are appointees, one being appointed by the president each year for a six-year term. Three, known as the executive (inspecting) committee, are elected by the Executive Board, one every other year to serve for six years. Of the latter, two must be college faculty members (one a teacher of a basic science and one a teacher of clinical art) and the third must be actively engaged in

general veterinary practice. This committee is charged with inspecting all the veterinary schools at least once every three years and presenting a written report on each to the Council. The Council then must publish its reports annually, including the list of approved schools. At its first meeting in May, 1946, the Council made some minor revisions in the "Essentials," then decided on a plan for classifying the schools. They were to be given: (1) full approval; (2) council (secret) probation approval; (3) public probation approval; or (4) were to be nonapproved. Schools placed on council or public probation were to be re-inspected annually.

Since all of the new schools had some marked deficiencies, each was placed first on public probation. At present, only one of the seven has been judged sufficiently mature to be raised to council probation. Seven of the older schools were fully approved on their first inspection. Others have since been given full approval. At present, seven schools remain on public probation. Thus, if the schedule of inspections decided upon originally is carried out, it will mean a total of about a dozen inspections annually. That is proving to be too heavy an assignment for committee-men who have other full-time duties.

Usually, the three-man committee takes two days for an inspection. Re-inspections are usually made by two men and may take less than two days. The inspection reports, after being approved by the full Council, are forwarded to the president and the dean of the school.

The A.M.A. Council has about three times as many schools to inspect and they go into greater detail but they make considerable use of questionnaires and have no definite schedule for inspections, some schools being rarely inspected. Furthermore, they employ a staff of medical personnel who do much of the inspecting and all of the report writing. The American Dental Association has twice as many schools but they also have full-time dental personnel working for their council.

With the last of the new veterinary schools having matured and been given their first inspection in 1952, and with the teacher shortage and other problems considerably alleviated, the peak of the Council's responsibility load would seem to have been passed. However, its load is still heavy, and a study is being made of the use of questionnaires as a substitute for some actual inspections.

How successful the Council's efforts have been can not be easily appraised. However, in spite of a 58 per cent increase in schools and a doubled enrollment, it is believed that the graduates are more uniformly well trained now than they were six years ago.

#### SPECIAL MENTION OF COMMITTEE AND COUNCIL MEMBERS

It would be impossible to give credit to all who served with distinction on these educational committees but special mention should be given at least to Dr. N. S. Mayo who served from 1915 to 1917 and again from 1928 to 1943, a total of seventeen years, and was chairman for thirteen of those stormy years. Dr. H. E. Bemis also served as chairman from 1928 until his death in 1931—only three years, but his contribution was exceptional because of the excellent analyses and the still useful reports he made of schools and professional activities at that time (*see the JOURNAL, Oct., 1930: 494-499; Nov., 1931: 669-702*). Dr. W. A. Hagan served a total of thirteen consecutive years, eight of them as a member of the Committee on Education. His experience there, as well as his long experience as a school administrator, was of exceptional value to the new Council upon which he also served until 1951.

Others with long and highly creditable committee service were Dr. C. D. McGilvray, 1929 to 1944, and Dr. B. T. Simms, 1919 to 1928.

#### The 1952 "Proceedings Book" Will Be Late

The editorial department of the AVMA has run into serious difficulty in the printing of the 1952 "Proceedings Book," inasmuch as the company that has done printing for the AVMA for many years, and was to print the "Proceedings," announced Nov. 1, 1952, that it was going out of business Dec. 31, 1952.

The mailing date of the "Proceedings Book" had been set for November 30, but this can not now be met. New printers have been secured to finish the book and it should be mailed about Jan. 15, 1953.

# CURRENT LITERATURE

## ABSTRACTS

### Pathology of Bovine Mastitis Caused by *Cryptococcus Neoformans*

The pathology of bovine mastitis caused by *Cryptococcus neoformans* is described.

The lesions are characteristic and are distinctive from those of the common types of bacterial bovine mastitis. The process consists primarily of dissolution of the epithelium of the acini, ductules, and ducts caused by massive growth of the organisms in the lumina, followed by a diffuse histiocytic, or by a frankly granulomatous reaction in the more chronic stages. The regional supra-mammary lymph nodes were commonly involved. One cow showed foci of cryptococcal infection in the lungs. — [J. R. M. Innes, H. R. Seibold, and W. P. Arentzen: *The Pathology of Bovine Mastitis Caused by Cryptococcus Neoformans*. Am. J. Vet. Res., 13, (Oct., 1952): 469-475.]

### Brucella Exposure During Early Calfhood

To determine why sexually immature cattle resist Brucella infection, month-old calves were injected with sex hormones in an attempt to stimulate the pubertal state. Calves injected with gonad-stimulating and estrogenic substances showed marked sexual activity and became infected with Brucella following subcutaneous inoculation with virulent *Brucella abortus*. Control calves (*i.e.*, without hormone stimulation) failed to show evidence of infection when exposed in like manner. Agglutinins produced persisted at high levels for approximately two months, following which there was a gradual recession until agglutination titers were negative after six months. Challenge exposure to *Br. abortus* during first pregnancy failed to demonstrate any increased resistance to infection as a result of prepubertal Brucella infection, although a decrease in abortion rate was observed. — [F. V. Washko, C. R. Donham, and Ann Heimlich: *Response of Cattle to Brucella Following Sexual Stimulation and Brucella Exposure During Early Calfhood*. Am. J. Vet. Res., 13, (Oct., 1952): 437-440.]

### Influence of Litter on Control of *Salmonella* Infections in Chicks

Day-old chicks were placed on new and on built-up litter and exposed orally to *Salmonella pullorum*. The mortality was 80 per cent in one trial and 83 per cent in a second with no differences in the types of litter. In each of the two trials, the surviving chicks were removed from the pens and other day-old chicks were placed in the naturally contaminated pens. The mortality

was only 1 per cent with no deaths ascribed to pullorum disease during a period of forty-five days. Bacteriological examination of the litters at intervals during the trials indicated that *S. pullorum* disappeared from built-up litter in fifteen to twenty-one days, while the organisms persisted in new cob litter for forty-eight to seventy days. Chickens, six weeks of age, were placed on litter which had just been sprayed with *Salmonella gallinarum*. Sixteen of 30 chickens on contaminated new cob litter died, while only 10 of 30 on built-up litter died. — [C. W. Botts, L. C. Ferguson, J. M. Birkeland, and A. R. Winter: *The Influence of Litter on the Control of Salmonella Infections in Chicks*. Am. J. Vet. Res., 13, (Oct., 1952): 562-565.]

## FOREIGN ABSTRACTS

### Synthetic Estrogens in Veterinary Medicine

This is the first in a series of papers presenting a review of the literature on the use of synthetic estrogens in domestic animals. This preliminary account includes a brief summary of papers dealing with the chemistry, application, biological effects, and undesirable effects of these compounds. — [Odd Skjerven: *Synthetic Estrogens in Veterinary Medicine*. I. Nord. Vet.-med., 4, (Aug., 1952): 794-799.] — A.G.K.

### Multiple Tumors in Cattle

In a packing plant, 2 cows about 5 years old were found to have yellowish green tumors. In addition to subcutaneous and intermuscular tumors, 1 animal had lesions in the lungs, mammary lymph nodes, and prescapular lymph nodes. Bone marrow was not involved and other organs appeared normal. Microscopically, the neoplasms consisted of cells with eosinophil granules as well as non-granulated cells in a connective tissue stroma. — [A. Thordal-Christensen: *Two Cases in Cattle of Green-Colored Multiple Tumors with Infiltration of Eosinophils (Chloroma)*. Nord. Vet.-med., 4, (Aug., 1952): 755-770.] — A.G.K.

### Infectious Enterotoxemia in Sheep

The disease prevails in southern Norway where it attacks young lambs. Severe outbreaks occurred in the late spring of 1951 when the season was cold. There was a morbidity of 5 to 23 per cent with a mortality of 95 to 100 per cent. The toxin was found by mouse-inoculation tests in intestinal contents of sheep from 24 different herds. Neutral-

ization tests revealed that 21 were of type D and four of type A of *Clostridium perfringens*. The pertinent literature is reviewed in detail.—[Erik Holager: *Infectious Enterotoxemia in Sheep*. *Nord. Vet.-med.*, 4, (Aug., 1952): 713, 728.]—A.G.K.

### Pleuropneumonia of Goats

Infectious pleuropneumonia of goats causes greater losses in the U.S.S.R. than all other goat diseases combined. The authors received a Stalin prize for developing an aluminum hydroxide-formol vaccine. The method of preparation is described and data on laboratory and field trials are given. The vaccine was given subcutaneously in two doses seven days apart.—[R. S. Polkovnikova, S. P. Ivanov, and I. I. Smirnov, *Kirgbiz Vet. Res. Sta.: An Aluminum Hydroxide-Formol Vaccine for Infections Pleuropneumonia of Goats*. *Veterinariya* (Moscow), 29, (June, 1952): 20-23.]—R.E.H.

### Tuberculin and Fascioliasis

A nonspecific reaction to intradermal tuberculin was noted in cattle affected with fascioliasis. No evidence of tuberculosis could be found by pathological or bacteriological methods. Twenty-eight reactors were treated with hexachloroethane, repeated after three months. The treatment did not entirely eliminate the flukes, but the next intradermal tuberculin test produced only two reactors.—[V. P. Fedynshin and A. I. Utsev, *Kursk Vet. Res. Sta.: On a Non-Specific Tuberculin Reaction in Cattle Affected with Fascioliasis*. *Veterinariya* (Moscow), 29, (June, 1952): 32-35.]—R.E.H.

### Lymphangitis in Horses

The cause of equine lymphangitis is difficult to establish, but the clinical course, i.e., high fever and leukocytosis, supports the general belief that it is infectious in origin. Failure to identify a specific microorganism is due to the delay in taking specimens. Bacteriological examinations must be done early in the disease. Streptococci and *Shigella equirulis* were isolated from two cases, respectively, when examined early.

Necropsy material from 16 cases provided further evidence that a microbe was associated with lymphangitis, usually a Streptococcus. Attempts to produce the disease by injecting subcutaneously around the fetlock joint cultures of streptococci, staphylococci, colon bacilli, fecal extracts, *Sb. equiridis* gave indifferent results. However, when horses were maintained on a low protein ration, it was possible to produce the disease with cultures of *Streptococcus equi* and *Streptococcus pyogenes*. It is concluded that lymphangitis is an infection in which other factors, such as poor ration or chronic ailments, may play a part.—[Gunnar Tufvesson: *Lymphangitis in Horses. II. Studies of the Etiology on the Basis of Bacteriological Examinations and Experiments*.

*Nord. Vet.-med.*, 4, (Aug., 1952): 729-744.]—A.G.K.

### The Double Epidemiology of Tuberculosis in Man

The campaign for eradication of bovine tuberculosis in cattle in the Netherlands has both an advantage and a disadvantage. The advantage is the decrease in the incidence of gastrointestinal tuberculosis in man. This bovine infection acquired during childhood is not too dangerous because of the alimentary portal of entry. The disadvantage is the loss of immunity to subsequent tuberculous infections of human type which the primary bovine infection provided. It is recommended that BCG be used to supplant the immunity formerly acquired by a primary bovine infection.—[M. Straub: *The Double Epidemiology of Tuberculosis in Man*. *Tijdschr. voor Diergeneesk.*, 77, (1952): 1-7.]—A.G.K.

### Control and Prevention of Foot-and-Mouth Disease

The author draws attention to the fact that police measures have never given satisfactory results in the Netherlands. Only in incidental cases, for instance if export interests are concerned, can slaughter be considered. The author recommends prophylactic vaccination. In judging police measures, different circumstances in different countries must be taken into consideration. At the meetings of the international office, the success of prophylactic vaccination in the Netherlands was pointed out. Hence, the office has changed its resolution in this manner "slaughtering is recommended in those places where the circumstances are favorable." At the last meeting, vaccination was strongly recommended and special attention was given to the excellent result by the use of culture virus.—[J. A. Beyers: *On the Control and the Prevention of Foot-and-Mouth Disease*. *Tijdschr. voor Diergeneesk.*, 77, (Sept., 1952): 630-635.]—L.V.E.

### Outbreak of Leptospirosis in Cattle in Israel in 1949

Blood serum from 49 of 102 cattle, tested with the agglutination-absorption test, agglutinated *Leptospira grippotyphosa* antigen in dilutions of 1:200 or higher. Milk agglutinated the antigen in very high titers, and the authors suggest the use of milk agglutination tests for diagnosis.

Only 12 animals showed severe clinical symptoms, and the clinical picture of 11 individuals is given in a comprehensive table. Of these, 6 suffered a relapse four to nine weeks after the original attack, resulting in the death of 2 and the slaughter of 4. In the group of 5 that did not relapse, 1 died and 2 were slaughtered. The 2 that recovered did so gradually and returned to 80 per cent of normal milk production. Many of the animals were subclinical reactors. The disease

picture showed typical clinical symptoms—fever of short duration, anorexia, bloody milk, hemoglobinuria, decrease and cessation of milk production, some jaundice, and emaciation. The blood picture in 1 cow reported showed leukocytosis, anisocytosis, normoblasts, and basophilic punctuation.

Autopsy revealed severe interstitial nephritis. *Leptospira* were found in the urine of 1 cow by darkfield examination, and in histological sections of kidneys of 3 cows with interstitial nephritis. These were stained with Levaditi's stain. *Leptospira* were cultured from the kidneys of 2 of these cows, and seemed to be of the *grippotyphosa* type. There is some question about the relationship of *Leptospira bovis* to *L. grippotyphosa*, and the opinion is expressed by the editor of the *Journal* that the two are probably not identical, and that *L. bovis* is probably part of the larger grouping of *L. grippotyphosa*, which infects man and sheep as well as cattle.

The authors believe that the human cases that were encountered at that time were not caused by infection from the cattle, but rather from contact with infected field rodents. They cite good reasons for this assumption. They further suggest that when the number of field rodents is small in the country, the number of cases of leptospirosis in cattle is small, and that in such a period man has an even smaller chance of becoming infected. The human cases are more likely the results of contact with infected cattle, while during the years when the number of rodents increases, the fields become heavily contaminated with their excretions causing a much greater risk of infection among field workers.—[J. Van Der Hoeden, C. Halevi, and I. Dafni: *A Description of a Severe Outbreak of Leptospirosis in Cattle in Shefayim, Refuah Vet., July, 1952.*]—M.E.

## BOOKS AND REPORTS

### Photosensitization in Diseases of Domestic Animals

This small publication amounts to a condensed survey of the literature bearing upon the diseases of animals caused by the action of sunlight on light-sensitive subjects. It is issued as "Review No. 3, Review Series of the Commonwealth Bureau of Animal Health," the author being associated with the Department of Agriculture, Hamilton, New Zealand.

First attention is given to an appraisal of the terminology commonly employed in discussing those diseases in which exposure to sunlight is a recognized factor. In the author's opinion, the terms used are not altogether fitting or free of ambiguity, but through long usage are probably destined to be retained. Photosensitivity is defined as the condition in which an animal has become hyper-reactive to sunlight; photosensitization should be the term used to describe the syndrome which develops when such an animal is actually exposed to sunlight. The differences between

simple sunburn and true photosensitization are well explained.

Three main types or classes of photosensitivity diseases are proposed: type I — primary photosensitivity, in which all the pathological changes observed are attributable to photodynamic action; type II — photosensitivity due to aberrant pigment formation, the pigments formed being either abnormal or formed in excessive quantities; type III — hepatogenous photosensitivity, which includes all forms traceable to failure or inadequacy of the excretory or detoxifying functions of the liver.

Photosensitizing principles (photodynamic agents) are discussed as to their sources and characteristic properties, whether derived from plants or from other sources. Their relation to light absorption and oxygen and the very common property of fluorescence are given due consideration.

A comprehensive list of plants and plant groups which are proved or suspected sources of photodynamic agents is given, grouped according to the type of photosensitization with which each is associated. Photographs of sheep and cattle suffering from photosensitization dermatitis and conjunctivitis are reproduced. The list of references contains more than 140 citations to publications, many of which have been issued by American publishers although the majority are from British Commonwealth sources. The condensed and authoritative information available in the book commends it to all who have to contend with photosensitivity in domestic animals, including veterinary students.—[*Photosensitization in Disease of Domestic Animals*. By N. T. Clare. 58 pages. 8 illustrations. Commonwealth Agricultural Bureau, Farnham Royal, Bucks, England. Price \$1.10.]—R. F. BOURNE.

### The 4-H Handbook

A clear, concise aid to 4-H Club leaders and older youth, "The 4-H Handbook" is now available. Written by Professor Harold A. Willman, 4-H Club dairy and livestock specialist of the New York State College of Agriculture, "The 4-H Handbook" presents well-organized plans for instructive, interesting, and enjoyable meetings.

The subjects discussed cover a wide range, including dairy, beef, poultry, crops, gardening, forestry, tractors, wildlife, and soil conservation. Detailed outlines of exercises on preparation and display of exhibits, judging, and presentation of public demonstrations are quickly available, as are lessons on the selection of projects, purchase of foundation stock, seed, and equipment, and the successful development of each project demonstration.

The organization of a 4-H Club is described and guide formulas for the planning and orderly conduct of regular meetings are given.

Recreation, including games, singing, camping, and suggestions for community service receive attention.

"The 4-H Handbook" is well illustrated. Pro-

fessor Willman's experience of more than twenty years in the 4-H field has enabled him to compile a practical, well-arranged book which will save the time and improve the efficiency of 4-H Club leaders. [*The 4-H Handbook*. By Harold A. Willman, Cornell University, 252 pages. Comstock Publishing Associates, Ithaca, N. Y. 1952. Price \$4.50.]—ALLEN POMEROY.

### Introduction to Veterinary Therapeutics

The field of veterinary therapeutics is covered in a brief, concise, interesting, and easily understood manner. Its extreme brevity gives the reader the impression of an outline rather than a textbook. It could find a place in the classroom as an outline for the study of large or small animal therapeutics, to be supplemented and elaborated on by the instructor. The practitioner may find it useful as a rapid review of the drugs used for the relief of abnormalities of various systems.

The book could hardly qualify as a text for the student in pharmacology. Little or no information is given concerning the mechanism of action of the drugs named. Again its brevity, though laudable in certain instances, precludes its use as anything but a reference for the purpose of orientation. The student could read the chapter entitled "The Nervous System" (including stimulants, sedatives, general anesthetics, local anesthetics, and the list of selected drugs) in approximately ten minutes since it consists of just 9 pages. The description of techniques employed in using the above drugs is inadequate for the beginner.

Another source of difficulty, when used by students, is the difference in spelling as compared with that taught in the United States. Teaching correct spelling, terminology, and correct abbreviations is difficult at its best; it is extremely difficult when the text disagrees with the instructor, and is still correct in England.—[*Introduction to Veterinary Therapeutics*. By George F. Boddie, 196 pages. Cloth. Oliver and Boyd, Edinburgh: Tweeddale Court. 1952. Price 15/-net (about \$2.15).]—F. J. KINGMA.

### Veterinary Parasitology

In 1934, Cameron's textbook "The Internal Parasites of Domestic Animals" was first published. This has now been revised and considerably enlarged under the title "The Parasites of Domestic Animals." New chapters on the "Prevention of Helminthic Diseases" and "Arthropods of Veterinary Importance" make this edition a much more complete text. As is true for most books on the subject, the parasites are presented by groups according to their zoological classification. There are many excellent illustrations and diagrams, most of which are original. While the clarity and brevity will be appreciated by the busy reader, the method of presentation makes the descriptive material somewhat difficult to follow

in some instances, and the discussion of certain groups is so brief as to be of little value. Unfortunately, a number of names which are now out of date are retained, and there are errors in some sections (e.g., the life cycle of the cat lungworm, *Aelurostrongylus abstrusus*). —[*The Parasites of Domestic Animals*. By T. W. M. Cameron. J. B. Lippincott Company, Philadelphia, Pa., 1951. Price \$7.00.]—W. S. BAILEY.

### REVIEWS OF VETERINARY MEDICAL FILMS

*Anthrax in Ohio*.—Sound, color, 16-mm., running time about twenty-five minutes. Produced by the Ohio Department of Agriculture with assistance from the U.S. Bureau of Animal Industry, Federal Civil Defense Administration, Ohio Veterinary Medical Association, and the American Veterinary Medical Association. Available from the AVMA Film Library, 600 S. Michigan Ave., Chicago 5, Ill. Handling charge \$2.50 plus shipping charges.

How anthrax was diagnosed and controlled in Ohio in 1952 is the story of this film. It shows how the definitive diagnosis was first made, how the spread and occurrence were investigated, how the disease was controlled, and how contaminated foreign bone meal was finally incriminated as the causative agent.

It is also a film which shows veterinary medical civil defense in action. The part played by the practitioner, the state and federal control agencies, and the laboratories in setting into motion the civil defense machinery is depicted and described in the narration.

The film is well done and should be most useful for showing to veterinarians as a part of their civil defense training. Certain autopsy scenes may be too "gory" for lay audiences but, in general, it can be used for that purpose too.

The production of this film by the Ohio workers is certainly worthy of commendation. It is well done and is a distinct addition to the supply of purely veterinary medical films. To Dr. H. G. Geyer, who recently resigned as state veterinarian of Ohio, must go the credit for the initiative to produce and finance this film.

*Rabies Can Be Controlled*.—Sound, color, 16-mm., running time about twelve minutes. Produced by, and available from, Lederle Laboratories, Pearl River, N. Y.

A well-directed film that should appeal to any audience but especially to those who like animal pets. Many beautiful canine specimens, champions and "mufts," are shown. The subject of rabies is delicately approached and should offend very few; in fact, from the viewpoint of anyone wishing to learn about rabies and the symptoms it produces, the approach is too delicate. Canine, bovine, and human patients are shown only briefly. The vaccinating of pets is nicely demonstrated.

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# THE NEWS

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## The AVMA Will Go to Toronto in 1953

*Ninetieth Annual Meeting to be Held July 20-23*

Committee on Local Arrangements Working—Ample Hotel Accommodations

Veterinarians from all over North America are showing great interest in the AVMA convention to be held in Toronto next July. It will be the first meeting held in Canada since the 1923 session in Montreal, the second to be held in Toronto (the other was in 1911), and the third time that the Association has met in the Dominion, Ottawa having been the host city in 1903.

AVMA conventions in Canada have always been outstanding and pleasant affairs and next year's session will be no exception. Moreover,

the convenient accessibility of Toronto to a large segment of the veterinary population of the two countries is giving rise to predictions of a new attendance record. The 1951 meeting in Milwaukee set the record with 3,128 registrations.

Toronto's location near the western end of Lake Ontario places it within less than 500 airline miles of the New England States, New York and Middle Atlantic States, several of the South Central and East Central States, and a good section of the Midwest. Sixty million

**Toronto has the finest harbor on the Great Lakes. This view of the harbor is from Center Island.**



people live within a day's journey of this popular convention city as may be seen from a few airline distances:

Portland, 450 mi.	Indianapolis, 430 mi.
Boston, 410 mi.	Detroit, 225 mi.
New York, 330 mi.	Chicago, 430 mi.
Washington, 340 mi.	Milwaukee, 425 mi.
Richmond, 410 mi.	Ottawa, 220 mi.
Pittsburgh, 230 mi.	Montreal, 320 mi.
Cleveland, 190 mi.	Quebec, 460 mi.
Columbus, 310 mi.	Rochester, 100 mi.
Cincinnati, 395 mi.	Buffalo, 60 mi.

#### HEADQUARTERS AND HOTELS

The Royal York, one of the largest and finest hotels in North America, in fact, in the British Empire, has been named as official headquarters. All general, scientific, and section meetings, as well as the commercial and educational exhibits, will be housed there. This hotel has allocated several hundred rooms for AVMA registrants but, obviously, will be able to accommodate only part of those who will attend.

In addition to the Royal York, the King Edward (another large hotel) and a number of other first-class hotels have allocated nearly 1,000 rooms. These, in addition to some excellent motels, insure ample and satisfactory accommodations for registrants.

#### HOUSING BUREAU SET UP

To insure orderly and satisfactory handling of reservations, the Committee on Local Arrangements has arranged for the Toronto Convention and Tourist Association to operate a housing bureau. All requests for accommodations will be cleared through and confirmed by the Bureau. Information about hotels and rates will be found on advertising pages 48 and 49, together with a reservation blank.

It is desired to emphasize the desirability and the necessity of DOUBLE OCCUPANCY of rooms wherever possible as the number of single rooms is limited.

#### LOCAL COMMITTEE ORGANIZED AND FUNCTIONING

The Committee on Local Arrangements for the Toronto convention was appointed a few weeks ago and recently held its first organization and planning session. It is composed of the following officers and committee chairmen:

##### Committee on Local Arrangements

*General Chairman*.—Dr. E. R. Bowness, Toronto.

*Vice-General Chairman*.—Dr. Harold Worton, Peterborough.

*General Secretary*.—Dr. C. V. R. Walker, Toronto.

##### CHAIRMEN

*Alumni Dinners*.—Dr. D. J. McLellan, Toronto.

*Entertainment*.—Drs. C. L. McGilvray and A. C. Secord, Toronto.

*Exhibits*.—Dr. J. N. Stratas, Toronto.

*Garages, Parking, and Airports*.—Dr. G. H. Collacutt, Toronto.

*Golf Tournament*.—Dr. J. J. Richardson, Toronto.

*Holiday and Housing*.—Dr. J. E. Leeson, Toronto.

*Meeting Rooms and Equipment*.—Dr. V. R. Brown, Guelph.

*Publicity*.—Dr. J. G. Mackay, Toronto.

*Reception and Hospitality*.—Drs. H. S. MacDonald and J. E. Mumford, Toronto.

*Registration and Information*.—Dr. N. D. Scollard, Toronto.

*Television*.—Dr. C. A. V. Barker, Guelph.

*Women's Activities*.—The officers and chairmen of the Women's Activities Committee will be listed in the February JOURNAL.

Succeeding issues of the JOURNAL will carry more information and details of the Toronto convention as plans develop, including the splendid attractions of Ontario province and other sections of Canada as vacation spots.

#### President-Elect McCallam Will Become AVMA Washington Representative

Brigadier General J. A. McCallam, president-elect of the AVMA, is retiring as chief of the Veterinary Division, Office of the Surgeon General, Department of the Army, Jan. 31, 1953, and will then become the Association's Washington representative. He will not devote his full time to this work but will be able to give sufficient attention to it so that this important aspect of Association activity will be properly looked after. In announcing this appointment, President W. L. Boyd said "The AVMA is extremely fortunate in procuring the services of General McCallam as our Washington representative. His years of experience in Washington among the top echelons of government equip him uniquely for this activity. It is indeed fortunate that General McCallam is retiring from his military appointment so that he can assume this work in addition to his many duties as president-elect and president of the AVMA."

The Association will also retain the services of Mr. F. M. Judge as a legislative reporter. He has been working with the AVMA central office staff in this connection for almost a year. Because of Mr. Judge's many years on the "Hill," he is well fitted to work with General McCallam in representing the AVMA in the nation's Capital.

General McCallam will not receive any salary for his services as Washington representative. He will be provided with the required office and secretarial assistance. General McCallam said, "We will move along slowly in developing this Association activity. I am confident that the AVMA will do whatever is necessary to make this service most effective for its members."

### Progress of the 1952 Research Fund Campaign

This is the first report on the current Research Fund-Raising Campaign which was officially kicked-off by Dr. A. H. Quin at the AVMA annual meeting last June. A statistical summary of the results as of Nov. 1, 1952, is shown in table 1.

The majority of the funds contributed thus far have been received in response to a letter mailed to all AVMA members on Aug. 15, 1952.

It is too early at this time to have received any significant response from a second letter mailed on October 29.

A quota has been established for each state based on an average contribution of \$10 per veterinarian, including nonmembers as well as AVMA members. To date, only nine states have contributed 10 per cent or more of their quota. However, since nonmembers were not included in the first mailing, this considerably reduced the total number of potential contributors.

TABLE I—First Report on Contributions to 1952 AVMA Research Fund Campaign (Nov. 1, 1952)

State	Total No. veterinarians (1952)	Quota*	Contributions received (to date)	Total amount contributed (to date)	Quota received (% to date)
Alabama	226	\$ 2,260.00	6	\$ 100.00	4.4
Arizona	71	710.00	3	35.00	4.9
Arkansas	69	690.00	4	55.00+	7.9
California	1,332	13,332.00	36	475.00+	3.5
Colorado	210	2,100.00	6	175.00	8.3
Connecticut	138	1,380.00	13	275.00	12.6
Delaware	42	420.00	1	10.00	2.3
District of Columbia	73	730.00	30+	285.00	39.0
Florida	300	3,000.00	14	335.00+	11.1
Georgia	280	2,800.00	7	82.00	2.8
Idaho	88	880.00	3	20.00	2.2
Illinois	800	8,000.00	40	1,092.50+	13.0
Indiana	580	5,800.00	16	255.00	4.3
Iowa	814	8,140.00	26	635.80+	7.8
Kansas	375	3,750.00	7	90.00	2.4
Kentucky	245	2,450.00	8	190.00	7.7
Louisiana	145	1,450.00	2	20.00	1.3
Maine	73	730.00	2	17.00+	2.1
Maryland	149	1,149.00	9	160.00+	13.9
Massachusetts	300	3,000.00	6	45.00	1.5
Michigan	623	6,230.00	29	415.00+	6.6
Minnesota	525	5,250.00	14	175.00	3.3
Mississippi	128	1,280.00	4	30.00	2.3
Missouri	460	4,600.00	11	135.00	2.9
Montana	93	930.00	3	40.00	4.3
Nebraska	330	3,300.00	7	110.00	3.3
Nevada	30	300.00	—	—	—
New Hampshire	53	550.00	1	10.00	1.8
New Jersey	346	3,460.00	30	445.00	12.8
New Mexico	46	460.00	2	20.00	4.3
New York	1,161	11,161.00	41	687.00	6.1
North Carolina	207	2,070.00	9	180.00	8.7
North Dakota	70	700.00	2	20.00	2.8
Ohio	940	9,400.00	34	385.00	4.0
Oklahoma	220	2,220.00	6	77.50	3.4
Oregon	198	1,980.00	10	145.00	7.3
Pennsylvania	640	6,400.00	28	374.00	5.8
Rhode Island	28	280.00	1	25.00	8.8
South Carolina	110	1,100.00	1	10.00	1.0
South Dakota	119	1,190.00	1	5.00	.4
Tennessee	168	1,680.00	1	20.00	1.1
Texas	875	8,750.00	7	185.00+	2.1
Utah	68	680.00	4	35.00+	5.1
Vermont	74	740.00	2	40.00+	5.4
Virginia	180	1,180.00	11	147.00	12.4
Washington	314	3,140.00	10	241.00	7.6
West Virginia	78	780.00	2	25.00	3.2
Wisconsin	664	6,640.00	20	292.50	4.4
Wyoming	55	550.00	4	70.00+	12.7
Hawaii	21	210.00	4	55.00	26.1
Canada	—	—	6	160.00+	—
Total	15,136	\$151,360.00	544	\$ 8,910.50	
Other Sources				3,000.00	
Total Contributions				\$11,910.50	

\* Based on an average contribution of \$10 per veterinarian.

The total amount contributed to date is 7 per cent of the original goal of \$100,000.

+ Includes contributions from state associations, local associations, and women's auxiliary.

++ Includes contributions from 25 members of Pathological Division, BAI.

A separate mailing was made to nonmembers in the early part of November and it is hoped that the response will boost the percentage of the quota attained by each state by the time the second report is prepared.

The following organizations have contributed a total of \$3,975. This amount is included in the total dollar value contributions as shown in table 1.

#### STATE, PROVINCIAL, AND LOCAL VETERINARY ORGANIZATIONS

Eastern Iowa Veterinary Medical Association  
Northern Illinois Veterinary Medical Association

Vermont Veterinary Medical Association  
Wyoming Veterinary Medical Association

#### WOMEN'S AUXILIARIES TO THE

Arkansas Veterinary Medical Association  
California State Veterinary Medical Association

Central California Veterinary Medical Association  
Florida State Veterinary Medical Association

Illinois State Veterinary Medical Association  
Iowa State Veterinary Medical Association

Iowa State College Student Chapter  
Maine Veterinary Medical Association

Maryland Veterinary Medical Association  
Michigan Veterinary Medical Association

Northern Illinois Veterinary Medical Association  
Ontario Veterinary Medical Association

Southeastern Michigan Veterinary Medical Association

Texas State Veterinary Medical Association  
Utah Veterinary Medical Association

#### OTHER GROUPS

Bureau of Animal Industry, Pathological Division  
Allied Laboratories

American Veterinary Exhibitors Association  
Haver-Glover Laboratories

Special acknowledgment is also made to Dr. W. R. Lawrence, of Dyersburg, Tenn., for his personal effort in obtaining donations totaling \$182.50 from ten of his clients.

#### Changes in Personnel of Subcommittee on Veterinary Items, National Formulary

President W. L. Boyd has appointed Dr. L. Meyer Jones, professor of veterinary physiology and pharmacology, Iowa State College, as chairman of the Subcommittee on Veterinary Items, National Formulary Committee (see October JOURNAL, p. 332), to replace Dr. B. V. Alfredson who has found it necessary to relinquish the post for the time being. Also, to serve on the Subcommittee until Dr. Alfredson resumes active participation in its work, President Boyd has appointed Dr. John E. Martin, assistant professor of veterinary physiology and pharmacology, University of Pennsylvania.

Dr. Martin, in collaboration with Dr. D. K. Detweiler of the Subcommittee on Veterinary Items, is undertaking preparation of the list of veterinary drugs that will appear in the next edition of the "National Formulary."

#### WOMEN'S AUXILIARY

**Student Auxiliary Activities.**—There are, in the United States and Canada, 19 veterinary colleges approved by the Council on Education of the AVMA. In 17 of these colleges there are active and enthusiastic student auxiliaries. The colleges not having auxiliaries are Tuskegee and Quebec.



Beautiful Susten Pass in Switzerland.

This is one of the scenic spots included in the tours to be taken in connection with the Fifteenth International Veterinary Congress in Stockholm, Aug. 9-15, 1953.

—Polytechnic Touring Asia, Ltd.

At the convention in Miami in 1950, the AVMA sponsored a complimentary dinner for student representatives, both men and women. This first meeting proved to be so successful that the AVMA plans to make it an annual affair. Following the dinner, the student auxiliary representatives and the AVMA auxiliary officers got together for a round-table discussion. It was from the discussion at this first meeting that the idea of a newsletter originated. This new venture under the direction of Mrs. H. S. MacDonald, then first vice-president, proved to be popular and extremely helpful.

Each year, six newsletters go out to the 17 auxiliaries. The approximate dates for mailing are the first of November, December, February, March, April, and May. Two copies go to each group and in some schools mimeographed copies are made so that each member has a copy. Through this letter, all sorts of plans are shared. New ideas for get-acquainted parties, for making money, and for discussion groups pass quickly from east to west and north to south.

Most of these groups have one social meeting per month with perhaps a dance, a Christmas dinner party, and a spring family picnic added for good measure. Then for the serious side, there are one or two meetings per month for discussion, demonstration, and observation of techniques.

Our records show that Kansas State College was the first student group to organize. This was in 1940 with a membership of 27. Last year their membership was 150. Our newest auxiliary is at the University of California at Davis.

Our constitution states that student membership is open to the wives of veterinary students who are members of a student chapter of the association, and that student membership shall carry all the privileges and duties of active membership except those of voting and holding office.

This past summer, two college groups sent in 100 per cent membership dues for the wives of their graduating senior class. These, of course, are active memberships. These "100 percenters" are at the University of Georgia and the University of Illinois. What an excellent record! Perhaps next June other groups will wish to follow this splendid example.

Student auxiliaries are an integral part of our organization. We need their youth, their enthusiasm, and their energy. The student leaders of today will be our auxiliary leaders of tomorrow. To have had the privilege of working with such a group is a real inspiration and a pleasure.

s/(MRS. R. A.) LAURA RUNNELLS, President-Elect.

• • •

**Minnesota Auxiliary.**—At the annual short

course for veterinarians at the University of Minnesota, October 23-24, the women were entertained with a tour of the Home Economics Building, a talk on home decorating, tea at the home of Mrs. Merrill, and dinner and visit to the American Swedish Institute in Minneapolis.

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**Mississippi Auxiliary.**—The Women's Auxiliary to the Mississippi Valley Veterinary Medi-



Newly elected officers of the Mississippi Valley Auxiliary are (left to right) Mrs. Samuel McCully, Lacon, vice-president; Mrs. R. E. Swinderman, Kewanee, president; Mrs. Wm. L. Beer, Aledo, secretary-treasurer.

cal Association met in Peoria, Ill., on Oct. 28-29, 1952. At the business meeting, presided over by the president, Mrs. A. C. Gathmann, Galva, the auxiliary voted to make contributions to the AVMA Research Fund and to the Student Loan Fund. Plans were formulated to set up a program to utilize AVMA public information radio scripts within this area. Mrs. G. I. Case, Kewanee, reported on the meeting of the Women's Auxiliary to the AVMA in Atlantic City. The following officers were elected for the ensuing year: president, Mrs. R. E. Swinderman, Kewanee; vice-president, Mrs. Samuel McCully, Lacon; secretary-treasurer, Mrs. Wm. L. Beer, Aledo.

Social activities of the convention included a tea at Bradley University Library, tour of the library, and a review of Mark Harris' book, "The City of Discontent," by Miss Virginia Newport, assistant professor of English at Bradley; a banquet and dance at the Pere Marquette Hotel; and a brunch in the Jefferson Room of the Jefferson Hotel.

s/MRS. GLEN I. CASE.

## STUDENT CHAPTER ACTIVITIES

**Missouri Chapter.**—The University of Missouri Student Chapter of the AVMA is striving to maintain the record of 100 per cent membership in the AVMA of all of its graduates. To date, the chapter has nearly 100 per cent

membership, including the first year class.

At the regular November meeting of the chapter, **Mr. R. W. Balham**, of the New Zealand Wildlife Department, was the guest speaker. Mr. Balham, who is studying our methods of wildlife practices at the University of Missouri, pointed out the great differences that exist between our problems of wildlife salvation and their's of wildlife eradication.

**Dr. R. E. Omohundro**, director of the Missouri Bureau of Animal Industry, discussed the various merits of a career in the Bureau to the third-year class at a special meeting on November 12.

s/JOHN P. HICKOX, Secretary.

## APPLICATIONS

### Applicants — Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., the names of applicants residing within the jurisdictional limits of the constituent association shall be published once in the JOURNAL.

The following applicants have been certified as members of the constituent association that has jurisdiction over the area in which the applicant resides. This certification was made by the secretary of the constituent association in accordance with Section 2, Article X, of the Administrative By-Laws.

#### BURCH, ROBERT L.

8720 15th Ave., N. W., Seattle, Wash.  
D.V.M., Washington State College, 1943.

#### LAWRENCE, RONALD E.

12 Russell St., W., Lindsay, Ontario, Canada.  
D.V.M., Ontario Veterinary College, 1943.

#### ROWSELL, HARRY C.

2024 Commonwealth Ave., St. Paul 8, Minn.  
D.V.M., Ontario Veterinary College, 1949.

### Applicants — Not Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., notice of all applications from applicants residing outside of the jurisdictional limits of the constituent associations, and members of the Armed Forces, shall be published in the JOURNAL for two successive months. The first notice shall give the applicant's full name, school, and year of graduation, post office address, and the names of his endorsers.

#### First Listing

#### de ARAUJO, ALOYSIO

Escola Superior de Agricultura Areias, Estado da Paraiba, Brazil.

D.V.M., Escola Superior de Veterinaria, Belo Horizonte, 1947.

Vouchers: A. V. Machado and S. Torres.

#### VANNIASSINGHAM, JOHN A.

9 Pengkalan Rama Road, Malacca-Malaya,  
South East Asia.

G.B.V.C., Bombay Veterinary College, 1937.

Vouchers: W. O. Brinker and E. K. Sales.

### 1952 Graduate Applicants

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of student chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (\*) after the name of a school indicates that all of this year's graduates have made application for membership.

#### First Listing

#### University of Pennsylvania\*

SIFFIN, DONALD E., V.M.D.

342 S. 10th St., Reynoldsville, Pa.

Vouchers: R. C. Snyder and Ira Mitterling.

## U. S. GOVERNMENT

**Veterinary Personnel Changes.**—The following changes in the force of veterinarians in the U. S. Bureau of Animal Industry are reported as of Nov. 21, 1952.

#### NEW APPOINTMENTS

Paul L. Anderson, Sioux City, Iowa.

Owen E. Andrus, Salt Lake City, Utah.

Robert P. Armstrong, Columbus, Ohio.

Lawrence J. Bonn, Chicago, Ill.

William T. Boozer, Suffolk, Va.

Jason W. Copeland, Montgomery, Ala.

I. Paul Coulter, Jackson, Miss.

J. Warren Detweiler, Philadelphia, Pa.

John E. Greenway, Cleveland, Ohio.

Richard W. Hughes, Beltsville, Md.

Glyndwr T. Mainwaring, Columbus, Ohio.

George M. Marugg, Portland, Ore.

Arthur D. Robb, Salt Lake City, Utah.

Enrico Sciorra, New York, N. Y.

Bert O. Sherrill, Terre Haute, Ind.

Lyle E. Tuck, St. Paul, Minn.

Percy L. Walker, Chicago, Ill.

#### RESIGNATIONS

Charles M. Johnson, Louisville, Ky.

Robert D. Lamser, Madison, Wis.

Frank A. McWilliams, Jr., Birmingham, Ala.

Richard Olney, Little Rock, Ark.

John S. Sickles, Boston, Mass.

#### MILITARY FURLough

Alvin Rotberg, Newark, N. J.

#### RETIREMENTS

Joseph M. Allen, Salt Lake City, Utah.

William Lee Carson, Helena, Mont.

Edward Himes, Kansas City, Kan.

Ora K. Hoffman, Baltimore, Md.

Bert O. Sherrill, Terre Haute, Ind.

#### TRANSFERS

Robert J. Anderson, from St. Paul, Minn., to Washington, D. C.

Robert P. Armstrong, from Columbus, Ohio, to Cleveland, Ohio.

Robert M. Clark, from Indianapolis, Ind., to Milwaukee, Wis.

Hugh J. Clary, from Milwaukee, Wis., to Fort Dodge, Iowa.

Donald G. DeValois, from Austin, Minn., to St. Paul, Minn.

Elwood E. Everson, from Chicago, Ill., to Mason City, Iowa.

Morse A. Gates, from Omaha, Neb., to South St. Paul, Minn.

John B. Healy, from Columbus, Ohio, to Richmond, Va. Ormond J. Hammond, from St. Paul, Minn., to Baltimore, Md.

William O. Ker, from Baltimore, Md., to Cleveland, Ohio.

Anthony J. Matter, from Pierre, S. Dak., to St. Paul, Minn.

Richard E. Omohundro, from Atlanta, Ga., to Jefferson City, Mo.

John C. Pace, from Yuma, Ariz., to Phoenix, Ariz.

Albert F. Ranney, from Bismarck, N. Dak., to Washington, D. C.

John L. Wilbur, Jr., from Lincoln, Neb., to St. Paul, Minn.

Edward J. Wilson, from Richmond, Va., to Augusta, Maine.

#### SEPARATION-TRANSFERS

James W. Allen, Fort Worth, Texas.

Owen Andrus, Salt Lake City, Utah.

Charles G. Durbin, Beltsville, Md.

\* \* \*

**BAI Examinations.**—An article entitled "Examination for Veterinarians for BAI Vacancies" in the December, 1952, JOURNAL (p. 504) needs clarification. It states "for veterinarian (trainee)—with a beginning salary of \$3,410 per year." Actually this examination, by the BAI, is for students completing their junior year for employment as trainees during their summer vacation months.

## AMONG THE STATES AND PROVINCES

### Connecticut

**State Association.**—Seventy members and guests of the Connecticut Veterinary Medical Association gathered at the Waverly Inn, Cheshire, for an interesting program. Dr. F. R. Koutz, associate professor of veterinary parasitology, College of Veterinary Medicine, Ohio State University, discussed some newer aspects in the life cycle of animal parasites; and Dr. Jean V. Smith, state veterinarian, outlined the state brucellosis program.

S/NIEL W. PIEPER, Resident Secretary.

### Florida

**State Association.**—The twenty-third annual meeting of the Florida State Veterinary Medical Association was held in the George Washington Hotel in West Palm Beach on Oct. 26-28, 1952. More than 200 veterinarians and their wives registered for the joint meeting of the Association and the Women's Auxiliary. Nine out-of-state speakers and more than 30 Florida veterinarians presented an outstanding scientific program.

The first afternoon of the program consisted of over 30 short, "snappy," practical demonstrations and talks. This portion of the program was presented in the garage of the hotel with bleachers provided for the viewers. It was

under the chairmanship of Dr. C. E. Bild of Miami, who had carefully arranged and scheduled these demonstrations so that they would be of maximum value to general practitioners.

The guest speakers were Drs. Francis Canfield, Denver, Colo.; D. L. Coffin, Angell Memorial Animal Hospital, Boston; C. E. DeCamp, Pitman-Moore, Co., New York City; Frantisek Kral, University of Pennsylvania, Philadelphia; G. Lawhon, Jr., Hartsville, S. Car.; S. F. Scheidy, Sharp and Dohme, West Point, Pa.; W. L. Sippel, Coastal Plains Experiment Station, Tifton, Ga.; C. D. Van Houweling, Chicago, assistant executive secretary of the AVMA; J. E. Greene, Alabama Polytechnic Institute, Auburn.

The following members of the Florida Association participated in the program: Drs. J. A. Acree, Jacksonville; M. R. Avery, Jr., Tampa; C. E. Bild, Miami; P. M. Boyd, Jr., Coral Gables; C. Brock, Pensacola; W. R. Brawner, Ocala; G. H. Clanton, Clearwater; W. W. Cunningham, St. Petersburg; C. E. Dee, Hollywood; C. B. Dibble, St. Petersburg; W. W. Emmel, Gainesville; I. C. Fredrickson, Hollywood; H. C. Hall, Tampa; W. C. Holland, Gainesville; W. F. Jackson, Lakeland; S. T. Johnson, Jacksonville; L. L. Kelly, Ft. Lauderdale; J. O. Knowles, Miami; R. P. Knowles, Miami; G. L. Lewallen, St. Petersburg; J. W. McDill, Dade City; E. L. Mathews, Palatka; H. L. McGee, Miami; R. F. Minnick, St. Petersburg; J. E. B. Mouw, Miami; P. S. Roy, Jacksonville; D. A. Sanders, Gainesville; C. F. Simpson, Gainesville; L. E. Swanson, Gainesville; E. F. Thomas, Jacksonville; E. D. Wright, Jacksonville; and J. H. Yarborough, Miami.

New officers of the Association are Drs. R. F. Jackson, St. Augustine, president; E. F. Thomas, Jacksonville, vice-president; R. P. Knowles, Miami, secretary; H. L. McGee, Miami, treasurer; and J. O. Knowles, Miami, delegate to the AVMA House of Representatives.

Guest speakers and other friends of Miami veterinarians were entertained by the South Florida Veterinary Medical Association for several days prior to the official opening of the meeting.

The highlight of the banquet was the humorous, but pointed, address delivered by James Arrington, editor of the *Collins News Commercial*, Collins, Miss.—C.D.V.H.

### Illinois

**Personal.**—Dr. J. D. Ray and family recently moved from Omaha, Neb., to White Hall, Ill. Dr. Ray is president and laboratory director of the Affiliated Laboratories Corporation at White Hall, a new organization sponsored by four long-established producers of hog cholera antiserum and hog cholera virus.

Dr. Ray resigned his position with the Corn

States Serum Company, Omaha, Neb., effective the first of 1952. He spent the first few months of 1952 attending veterinary association meetings in various states and visiting his home state of North Carolina.

#### Indiana

**Michiana Association.**—The Michiana Veterinary Medical Association met for their monthly meeting at Hotel LaSalle, South Bend, Ind., on Nov. 6, 1952. **Dr. Wayne Riser**, Skokie, Ill., presented an informative talk on congenital anomalies in small animal practice. A question box gave all the members an opportunity to find answers to their own particular problems.

s/BRUCE HOSTRAWER, Secretary.

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**Sixth District Association.**—At the November 5 meeting of the Sixth District (Ind.) Veterinary Medical Association in Kirklin, Dr. **Charles York** of the Research Department, Pitman-Moore Co., spoke on leptospirosis in cattle, especially in the dairy cow, where it might prove to be quite a problem.

Officers of this association are Drs. Thomas W. Freas, Veedersburg, president; H. G. White, Frankfort, vice-president; and Harry E. Blair, Brownsburg, secretary-treasurer.

The women were entertained by Mrs. Donald Newman, pianist, and by Mrs. George Valley who showed recent pictures her husband had taken in Korea. Dr. and Mrs. W. B. Aiken of Kirklin were host and hostess.

s/J. L. KIXMILLER, Resident Secretary.

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**Northwestern Association.**—On October 23, the Northwestern Indiana Veterinary Medical Association met in Pine Village to hear Dr. **R. C. Klussendorf** of Commercial Solvents Co., Terre Haute, present an instructive talk on some disease conditions of cattle and swine. He showed interesting slides of affected animals. The production and use of some of the antibiotics was also explained.

Dr. and Mrs. T. P. White, of Pine Village, were host and hostess.

s/J. L. KIXMILLER, Resident Secretary.

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**Tenth District Association.**—The Tenth District (Ind.) Veterinary Medical Association met in Greenfield on November 20. Dr. **C. D. Van Houweling**, Chicago, assistant executive secretary of the AVMA, made a most interesting talk on the benefits of AVMA membership and of a good public relations program. Dr. Van Houweling illustrated his talk with slides and also showed the new motion picture on anthrax.

s/J. L. KIXMILLER, Resident Secretary.

#### Iowa

**Midwest Small Animal Association.**—The fifteenth annual meeting of the Midwest Small Animal Association, and regional meeting of

the American Animal Hospital Association, was held Nov. 12-13, 1952, at the Hotel Burlington in Burlington.

**Dr. Frank R. Booth**, Elkhart, Ind., was moderator of a panel on "Stepping up Hospital Efficiency," which included the following speakers: Drs. **H. Driscoll Cain**, Carmel, Ind.; **James E. Carver**, Michigan City, Ind.; **Julius J. Fishler**, Elkhart, Ind.; **Harry J. Magrane, Jr.**, Mishawaka, Ind.; **Robert E. Miller**, Richmond, Ind.; and **Paul T. White**, Indianapolis.

Other program speakers were: Drs. **Durwood Baker**, Iowa State College, Ames; **Ralph Witter**, University of Illinois, Urbana; **John N. McIlroy**, Omaha, Neb.; **Bennett J. Porter**, Minneapolis, Minn.; **J. Porter Coble**, Springfield, Ill.; **William F. Irwin**, Tulsa, Okla.; **C. Edwin Hofmann**, Tulsa; **James B. Corcoran**, Oklahoma City; **Carroll L. Miller**, Oak Park, Ill.; **Darrell S. Steele**, Minneapolis, Minn.; **Donald E. Simes**, Duluth, Minn.; **Ralph E. Ruggles**, Moline, Ill.; **Lloyd C. Moss**, Colorado A. & M. College, Fort Collins; **George W. Mather**, University of Minnesota, St. Paul; **Robert Glover**, Evanston, Ill.; **A. Grant Misener** and **J. Kenneth Bone**, Chicago.

Officers elected for the ensuing year are Drs. **I. P. Irwin**, Iowa City, Iowa, president; **Frank Booth**, Elkhart, Ind., vice-president; and **J. Porter Coble**, Springfield, Ill., reelected secretary-treasurer.

s/J. PORTER COBLE, Secretary.

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**Iowa State College Honors Five.**—Iowa State College honored four of the retired faculty of its Division of Veterinary Medicine as well as its new dean at a banquet at the Memorial Union on Nov. 18, 1952. The honored guests were Dr. Charles Murray (ISC '12), who has been a member of the faculty for forty years, director of the Veterinary Research Institute for many years, and the school's third dean from 1936 to 1943; Dr. C. H. Covault (OSU '11), a member of the faculty for thirty-five years who retired as head of the Department of Medicine and as director of clinics in 1951; Dr. H. L. Foust (OSU '14), head of the Department of Anatomy for twenty-four years, who retired in 1951; Dr. H. D. Bergman (ISC '10), member of the faculty for forty-two years, head of the Department of Physiology for many years, and dean from 1943 to 1952; and Dr. I. A. Merchant (COL '24), member of the faculty twenty-seven years, formerly head of the Department of Hygiene, and now dean of the Division.

Nearly 300 persons attended the banquet and autographed an album for each of the honored guests.

Dr. Murray was unable to attend since he was convalescing nicely from recent minor surgery. Dr. and Mrs. Foust also were absent since they had moved to Tyler, Texas.

## Kansas

**New Association Formed.**—The veterinarians of the western district of Kansas have formed an association and will hold meetings twice a year. Dr. Wm. Ripple of Dodge City is the president and Dr. M. P. Reeves of Garden City is secretary of the new group.

s/M. P. REEVES, *Secretary.*

\* \* \*

**Kansas City Association.**—Dr. Roland Anderson of Elkhorn, Wis., discussed dairy practice problems at the November 18 meeting of the Kansas City Veterinary Medical Association. Dr. Anderson practices in one of the most concentrated dairy sections of the country.

At the October 21 meeting of the Kansas City Association, Dr. Milo Johnson, Division of Quarantine, U. S. Bureau of Animal Industry, discussed vesicular diseases (with illustrations).

The Kansas City Association has created a special committee on civil defense which includes Drs. Lenly T. Hopkins, chairman, representing federal veterinarians; Deets Pickett, representing small animal practitioners; W. H. Mowder, general practitioners; James C. Davis, commercial veterinarians. Others appointed to civil defense positions are Drs. K. M. Curts, on the advisory committee to the deputy director, Medical Health Services, Civil Defense Department; and T. M. Eagle, co-chief, Chemical and Biological Warfare Section of the operational section of the Civil Defense Department.

s/K. MAYNARD CURTS, *Resident Secretary*

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**Southeast Kansas District Association.**—On Oct. 24, 1952, the Southeast Kansas District Veterinary Medical Association met in Oswego to hear Dr. Fayne H. Oberst, Kansas State College, discuss sterility problems; and Dr. Dean S. Folsom, also of Kansas State College, give some practical pointers on parasite problems.

s/K. MAYNARD CURTS, *Resident Secretary.*

## Massachusetts

**State Association.**—The regular monthly meeting of the Massachusetts Veterinary Association was held Nov. 19, 1952, at the Hotel Beaconsfield, Brookline. The speaker for the evening was Dr. Jacques Jenny, associate professor of veterinary surgery, University of Pennsylvania, Philadelphia, who discussed biological and mechanical principles in the treatment of fractures.

s/C. LAWRENCE BLAKELY, *Secretary.*

## Michigan

**Claude S. Bryan Memorial Established.**—The American Board of Veterinary Public Health, at its annual meeting in Milwaukee, Wis., August, 1951, established the Claude S.

Bryan Memorial Award at Michigan State College. This was done in recognition of the interest in, and promotion of, veterinary public health manifested by C. S. Bryan, late



The plaque, in memory of Dr. C. S. Bryan, which hangs in Ward Giltner Hall, Michigan State College.

dean of the School of Veterinary Medicine at Michigan State College.

This award will be given annually to the senior veterinary student at M.S.C., who, in the opinion of the faculty of the School of Veterinary Medicine, has done the best work in subjects pertaining to veterinary public health during his college career. The recipient's name will be engraved on one of the bronze plates on the plaque (see illustration) which is hung in the main lobby of Ward Giltner Hall. In addition to this recognition, he will receive a copy of the book which, at the time, rates as the best in public health. The presentation of the award will be made at the honors convocation of the School of Veterinary Medicine held each spring quarter.

The American Board of Veterinary Public Health is a specialty board made up of public health veterinarians. Its objectives are: (1) to further the educational and scientific progress in the specialty of veterinary public health and to encourage education, training, and research in veterinary public health; (2) to establish standards of training and experience for qualification of specialists in veterinary public health; (3) to further the recognition of such qualified specialists by suitable certification and other means.

s/H. D. STAFSETH

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**Ward Giltner Hall Completed.**—The new \$2,400,000 Ward Giltner Hall for the School of Veterinary Medicine, Michigan State College, has now been completed and is in full use. It includes the old veterinary clinic and the anatomy building which have been modernized, with a new structure connecting these two buildings. The total floor space in the five-

story building is about 232,000 sq. ft. or approximately 5 acres. It includes, among other things, about 60 teaching and research laboratories and has a clinical capacity for 80 large animals.

#### Minnesota

**Short Course.**—Approximately 115 veterinarians and 110 students and others attended the twenty-ninth annual short course for veterinarians at University Farm, St. Paul, on Oct. 23-24, 1952. One of the interesting features of the program was a report on various research projects by staff members.

Guest speakers on the program were **Drs. P. C. Bennett**, Iowa Veterinary Diagnostic Laboratory, Iowa State College, Ames; **F. C. Driver**, federal inspector in charge, Bureau of Animal Industry, St. Paul; **G. E. Keller**, field veterinarian, Minnesota State Livestock Sanitary Board, St. Paul; **L. O. Mott**, Pathological Division, Bureau of Animal Industry, Washington, D. C.; **A. H. Quin**, head, Professional Service Division, Jensen-Salsbury Laboratories, Kansas City, Mo.; **C. J. Rosell**, St. Paul; **Dale Sorenson**, Department of Veterinary Science, University of Wisconsin, Madison; **R. J. Tobola**, Jackson, Minn.; and **R. L. West**, Minnesota State Livestock Sanitary Board, St. Paul.

Members of the University staff who participated in the program were **Drs. J. L. Morrill**, **C. H. Bailey**, **Harold Macy**, **J. O. Christianson**, **J. P. Arnold**, **D. H. Clifford**, **R. Fennstermacher**, **H. J. Griffiths**, **Harvey H. Hoyt**, **O. B. Jesness**, **H. C. H. Kernkamp**, **R. L. Kitchell**, **D. G. Low**, **G. W. Mather**, **R. A. Merrill**, **B. S. Pomeroy**, **M. H. Roepke**, **J. H. Sauter**, **A. F. Sellers**, and **A. F. Weber**.

Dr. John P. Arnold of the School of Veterinary Medicine was chairman of the Committee on Arrangements.

s/HENRY J. GRIFFITHS, Resident Secretary.

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**Twin City Society.**—The principal speaker at the October 23 meeting of the Twin City Veterinary Medical Society was **Dr. O. B. Jesness**, professor and chief of Agricultural Economics at the University of Minnesota. Approximately 50 attended the meeting.

Officers for the current year are **Drs. G. E. Keller**, president; **W. N. Peterson**, vice-president; and **G. W. Mather**, secretary-treasurer.

s/HENRY J. GRIFFITHS, Resident Secretary.

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**BAI Officials in Minnesota Honored at Washington.**—During the past summer, two members of the Bureau of Animal Industry stationed in Minnesota were recognized at the Honor Awards Ceremony at Washington, D. C. Superior Service Awards were conferred on **Dr. Fred C. Driver** (IND '10), inspector in

charge, St. Paul, and his assistant, **Dr. Lawrence B. Clausen** (CHI '14). The award to Dr. Driver was made for his leadership and initiative displayed in pioneering the use of the brucellosis milk ring test in the United States, and to his assistant for his contribution and aid in this work.

s/HENRY J. GRIFFITHS, Resident Secretary.

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**Staff Appointments at University.**—During the past few months, the following have joined the staff of the School of Veterinary Medicine at the University of Minnesota: **Dr. Griselda Wolf** (MIN '52) as a research fellow in small animal medicine; **Edward Usenik** (MIN '52) as instructor in large animal surgery; **Wallace E. Mattson** (MIN '52) accepted a research fellowship in a soybean oil meal toxicity project; and **Mr. John M. Sieburth**, B.S.A., M.Sc., joined the staff as an instructor.

s/HENRY J. GRIFFITHS, Resident Secretary.

#### New Jersey

**State Association.**—The sixty-ninth annual meeting of the Veterinary Medical Association of New Jersey will be held Feb. 5-6, 1953, at the Hotel Essex House, in Newark. The following scientific program has been planned:

**Dr. R. R. Shomer**, Teaneck, will moderate a panel discussion on diagnosing diseases of small animals. Other panel members are **Drs. H. C. Stephenson**, Cornell University; **Frank Bloom**, Flushing, N. Y.; and **W. O. Brinker**, Michigan State College.

A panel discussion on hormone therapy in animals will have **Dr. A. F. North, Jr.**, as its moderator, and the following discussants: **Drs. J. H. Leathem**, Rutgers University, New Brunswick; **J. DeVita**, New Haven, Conn.; and **A. Henry Craige, Jr.**, Indianapolis, Ind.

Another panel discussion, on everyday problems in dairy cattle practice, will be presented by **Drs. John S. Gray**, Newton, moderator; **Charles W. Raker**, University of Pennsylvania; **G. H. Hopson**, Poughkeepsie, N. Y.; and **A. W. Stults**, Hopewell.

Others who will present scientific papers are **Drs. R. D. Coneley**, Lima, Pa.; **H. C. King**, U. S. BAI, Trenton; **R. A. Hendershot**, New Jersey Department of Agriculture, Trenton; **A. Winter**, U. S. BAI, Arlington, Va.; **H. E. Jensen**, University Heights, Ohio; **J. R. McCoy**, Rutgers University, New Brunswick, N. J.

A citation for **Dr. Richard Shope**, M.D., V.M.D., will be read by **Drs. H. J. Stafseth**, Michigan State College; **Frank Todd**, Arlington, Va.; and **James H. Steele**, Atlanta, Ga.

s/MYRON S. ARLEIN, Chairman.

#### New York

**Westchester County Society.**—At the meeting of the Westchester County Veterinary Medical Society in White Plains, on Oct. 23, 1952, **Dr.**

**Corydon T. Finn**, attorney, U. S. F. and G. Co., discussed insurance as it applies to veterinarians. This was an interesting presentation and contained much information which applied directly to the veterinary practitioner.

s/C. E. DeCAMP, *Secretary.*

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**New York City Association.**—The regular meeting of the Veterinary Medical Association of New York City, Inc., was held at the New York Academy of Sciences, the evening of November 5. **Dr. Raymond J. Garbutt**, of New York City, presented a paper on "Surgery of the Eye," which was illustrated by colored slides. **Dr. James A. Baker**, director, Veterinary Virus Research Institute, Cornell University, spoke on "The Present Status of Infectious Diseases in Dogs."

Drs. H. J. Deutsch, M. Regenbogen, J. C. Shaffer, O. H. Siegmund, I. Stern, and M. Skamser are new members of the Association.

s/C. R. SCHROEDER, *Secretary.*

#### Oregon

**State Association.**—The Oregon State Veterinary Medical Association met at the Multnomah Hotel in Portland on Oct. 25, 1952.

The following speakers comprised the program: **Drs. A. G. Beagle**, Portland; **T. H. Reed**, Portland; **J. L. Ellis**, Olympia, Wash.; **John F. Christensen**, School of Veterinary Medicine, University of California, Davis; and **L. R. Vawter**, Oregon State College, Corvallis.

New officers of the association are Drs. C. F. Milleson, Portland, president; E. L. Henkel, Silverton, president-elect; and Edward L. Holden, Oswego, secretary-treasurer. Drs. Wm. E. Ruggles, Portland, and James Adams, Oregon City, were elected to the executive board.

s/EDWARD L. HOLDEN, *Resident Secretary.*

#### Pennsylvania

**Bucks-Montgomery Association.**—The Bucks-Montgomery Veterinary Medical Association met at the Moose Lodge in Doylestown on Nov. 12, 1952, to hear **Dr. H. A. Milo**, director of the BAI for Harrisburg, discuss reportable diseases.

s/VINCENT W. RUTH, *Secretary.*

#### Vermont

**Tri-County Society.**—The Tri-County Veterinary Medical Society, organized by Dr. James Wadsworth, Department of Animal Pathology, University of Vermont, held its first meeting on Sept. 22, 1952, in Burlington. It was decided that meetings would be held in February, May, and September each year, that the chairmanship would be rotated, and that the meetings would be of a social and educational type. Ten veterinarians were present, and Dr. R. O. Fournier

of Burlington was chosen chairman for the next meeting.

s/W. B. DURRELL, *Resident Secretary.*

## FOREIGN NEWS

#### British West Indies

**Drs. Samper-Salazar and Schofield Visit Islands.**—The Trinidad Branch of the British Caribbean Veterinary Association which met on Oct. 23, 1952, welcomed Dr. Alfred Samper-Salazar, a 1942 graduate of the Texas A. & M. School of Veterinary Medicine. Dr. Samper-Salazar was vacationing for a few weeks in the Island. His home is in Colombia, South America, where he practices veterinary medicine and manages his own beef herds of native cattle. Dr. Samper-Salazar addressed the group on the aspects and environmental conditions of animal husbandry in his homeland of Colombia. On leaving Trinidad, he planned to proceed to Providence, R.I.

Another recent visitor to the Colony was Dr. Frank W. Schofield, professor of pathology at the Ontario Veterinary College in Canada. Dr. Schofield visited the Islands of Trinidad and Jamaica and the colony of British Guiana, S. A., and was the guest of O.V.C. graduates scattered in these parts, all of whom were students under Dr. Schofield's capable guidance at Ontario.

s/S. P. BENNETT, *Resident Secretary.*

## VETERINARY MILITARY SERVICE

**Leptospirosis Symposium.**—The Army Medical Service Graduate School in Washington, D. C., sponsored a two-day symposium on leptospirosis on Dec. 11 and 12, 1952. Scientists from the field of medicine, public health, veterinary medicine, and livestock sanitation from all parts of the United States and abroad were in attendance. The prevalence of Leptospira infection in man as well as animals in many parts of the world is becoming recognized. Until recently, diagnosis depended chiefly upon the expensive, difficult microscopic agglutination-lysis test, but now a comparatively simple complement-fixation test is being used.

The Army Medical Center is typing all available Leptospira cultures isolated throughout this country. Eight strains have already been identified. Farm animals, pets, rats, and mice have been established as carriers and reservoirs of infection. Among those taking part in the symposium were **Dr. Karl Reinhard** of the Rocky Mountain Laboratory and **Lt. Col. Robert Yager** and **Major William Gochneur** of the Army Veterinary Corps.

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**Colonel Karr Awarded Oak Leaf Cluster.**—

Colonel James R. Karr, U.S.A.F. (V.C.), has recently been awarded the First Oak Leaf Cluster to the Legion of Merit for exceptionally meritorious conduct in the performance of outstanding service in the United Nations from July 4, 1952, to July 15, 1952. His current assignment is command veterinarian for the Far East Air Forces in Japan. Colonel Karr was graduated from the Ohio State University School of Veterinary Medicine in 1932.

## BIRTHS

Dr. (COR '46) and Mrs. G. E. Brightenbock, Montpelier, Vt., announce the birth of a son, George Eric, on Oct. 23, 1952.

Dr. (MSC '41) and Mrs. Stephen R. Kelly, Detroit, Mich., announce the birth of a daughter, Carol, on Oct. 27, 1952.

Dr. (API '41) and Mrs. Alexander T. Wiatt, Hampton, Va., announce the birth of a son, John Thomas, on Nov. 7, 1952.

## DEATHS

**★Ralph W. Bernhardt** (MDC '11), 67, Enderlin, N. Dak., died Nov. 2, 1952. Dr. Bernhardt practiced in Enderlin for forty years. He was a frequent attendant at veterinary meetings. He was a member of the North Dakota Veterinary Medical Association and of the AVMA.

**★James M. Bryan** (API '23), 55, Birmingham, Ala., died Sept. 4, 1952, after a heart attack. Dr. Bryan had practiced in Birmingham for twenty-nine years. He is survived by his widow, two daughters, and two sons, one of which, Monroe, is a student at the Alabama Polytechnic Institute School of Veterinary Medicine.

Dr. Bryan was a member of the Alabama Veterinary Medical Association and of the AVMA.

**Albert D. Conley** (ONT '21), Milwaukee, Wis., died recently. Dr. Conley had been employed by the Bureau of Animal Industry.

**C. W. Cranford** (USC '18), 56, Winston-Salem, N. Car., died on Oct. 2, 1952. Dr. Cranford, who had practiced in Winston-Salem since 1919, had been in ill health for several years. He is survived by his widow, a daughter, and a son.

**Lewis H. Crisler** (OSU '94), 85, Covington, Ky., died Oct. 4, 1952. Dr. Crisler practiced in Covington for thirty-two years and was a member of the Covington Health Department for twenty years. He was a member of the first state board of veterinary examiners in Kentucky in 1916. Dr. Crisler had been a member of the AVMA.

**Frank J. Embick** (CVC '12), Laurel, Neb., died Aug. 4, 1952, as the result of an automobile

accident. Dr. Embick was a general practitioner. He is survived by his widow.

**★Albert B. Farkas** (BUD '08), 68, Chicago, Ill., died Oct. 5, 1952. Dr. Farkas had retired from practice. He was a member of the Hungarian National Veterinary Association and of the AVMA.

**★James E. Hapenney** (CVC '18), 63, Los Angeles, Calif., died Sept. 30, 1952. Dr. Hapenney was a member of the Southern California and California State Veterinary Medical Associations and of the AVMA.

**★Thomas A. Ladson** (USC '05), 67, Olney, Md., died Oct. 31, 1952. Dr. Ladson entered the service of the U. S. Bureau of Animal Industry in 1906 and resigned to enter private practice in 1926. During the latter part of his service with the Bureau, he was in charge of tuberculosis eradication in Maryland and Delaware. Dr. Ladson had been president of the Maryland State Board of Veterinary Examiners for sixteen years and was probably the most widely known and highly respected veterinarian in the state.

Dr. Ladson was a member of the Maryland State Veterinary Medical Association and of the AVMA. He is survived by his widow and his two sons, both veterinarians in Olney, Md.

**★G. A. Pfaffman** (OSU '06), 67, Los Angeles, Calif., died June 1, 1952, after an illness of several months. Dr. Pfaffman was employed for eleven years as a veterinary inspector by the U. S. BAI. He was appointed deputy state veterinarian of California in 1917 and later became field veterinarian in the Division of Animal Industry and then livestock disease control specialist.

Dr. Pfaffman took an active part in many livestock disease control activities in the state and innumerable outbreaks of infectious diseases were successfully handled by him. He retired from state service on Aug. 31, 1950. He was admitted to the AVMA in 1939.

**Bert J. Riley** (ONT '24), 51, Alum Creek, W. Va., died Nov. 19, 1952. For several years, Dr. Riley was associated with Dr. S. E. Hershey of Charleston. He then was affiliated with the state and federal agricultural departments in tuberculosis eradication. He later returned to Alum Creek, near Charleston, where he was employed at the time of his death. Dr. Riley is survived by his mother, four sisters, and a brother.

**★Julius W. Scheibler** (CVC '15), 57, Germantown, Tenn., died Nov. 10, 1952. Dr. Scheibler was a member of the AVMA for thirty years.

**★Donald W. Wright** (MCK '17), 60, Westfield, Wis., died Nov. 10, 1952. Dr. Wright was a member of the Wisconsin Veterinary Medical Association and of the AVMA.

★Indicates members of the AVMA.

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## COMING MEETINGS

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Notices of Coming Meetings must be received by 4th of month preceding date of issue

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University of Pennsylvania. Annual conference for veterinarians. School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., Jan. 6-7, 1953.

Ohio State Veterinary Medical Association. Annual meeting. Deshler-Wallack Hotel, Columbus, Ohio, Jan. 7-9, 1953. F. J. Kingma, Veterinary Laboratory, The Ohio State University, Columbus 10, Ohio, secretary.

New York State Veterinary College. Annual conference for veterinarians. New York State Veterinary College, Cornell University, Ithaca, N. Y., Jan. 7-9, 1953. W. A. Hagan, dean.

Oklahoma Veterinary Medical Association. Annual meeting. Biltmore Hotel, Oklahoma City, Okla., Jan. 12-13, 1953. Lewis H. Moe, Oklahoma A. & M. College, Stillwater, Okla., secretary.

Tri-State (Mississippi, Arkansas, Tennessee) Veterinary Medical Association. Annual meeting. Hotel Peabody, Memphis, Tenn., Jan. 12-14, 1953. W. L. Thomas, 906 Broadway, Little Rock, Ark., chairman.

Indiana Veterinary Medical Association. Annual meeting. Hotel Severin, Indianapolis, Ind., Jan. 14-16, 1953. W. W. Garverick, Zionsville, Ind., secretary.

Ontario Veterinary Association. Annual meeting. Chateau Laurier Hotel, Ottawa, Ont., Jan. 14-16, 1953. R. V. L. Walker, 438 Piccadilly Ave., Ottawa, Ont., chairman.

Intermountain Veterinary Medical Association. Annual meeting. Newhouse Hotel, Salt Lake City, Utah, Jan. 19-21, 1953. H. F. Wilkins, Montana Livestock Sanitary Board, Helena, Mont., chairman, program committee.

Iowa Veterinary Medical Association. Annual meeting. Hotel Fort Des Moines, Des Moines, Iowa, Jan. 20-22, 1953. E. B. Young, Waukee, Iowa, secretary.

Michigan State College. Annual postgraduate conference for veterinarians. Michigan State College, East Lansing, Mich., Jan. 21-22, 1953. G. R. Moore, Department of Surgery and Medicine, chairman.

Texas State Veterinary Medical Association of. Annual meeting. Baker Hotel, Mineral Wells, Texas, Jan. 26-27, 1953. Al Price, 101 Veterinary Anatomy Building, College Station, Texas, executive secretary.

Minnesota State Veterinary Medical Society. Annual meeting. Nicollet Hotel, Minneapolis, Minn., Jan. 26-28, 1953. B. S. Pomeroy, St. Paul 1, Minn., secretary.

California State Veterinary Medical Association. Midwinter Annual meeting, Davis, Calif., Jan. 26-28, 1953. W. J. Zontine, 1014 Yucca Ave., Lancaster, Calif., program chairman.

North Carolina Veterinary Conference. North Carolina State College, Raleigh, N. Car., Jan. 27-29, 1953. C. D. Grinnells, North Carolina State College, Raleigh, chairman.

Illinois State Veterinary Medical Association. Annual meeting. Hotel Sherman, Chicago, Ill., Jan. 28-30, 1953. A. G. Misener, 6448 North Clark St., Chicago 26, Ill., secretary.

Louisiana State University. Annual conference for veterinarians. Louisiana State University, Baton Rouge, La., Feb. 3-4, 1953. W. T. Oglesby, head, Department of Veterinary Science.

Connecticut Veterinary Medical Association. Hotel Bond, Hartford, Conn., Feb. 4, 1953. Niel W. Pieper, Middletown, Conn., resident secretary.

Veterinary Medical Association of New Jersey. Annual meeting. Essex House, Newark, N. J., Feb. 5-6, 1953. J. R. Porteus, P. O. Box 938, Trenton, N. J., president.

Colorado A. & M. College. Annual conference for veterinarians. Colorado A. & M. College, Fort Collins, Colo., Feb. 16-18, 1953. O. R. Adams, director of veterinary clinics.

Missouri Veterinary Medical Association. Annual meeting. Hotel Jefferson, St. Louis, Mo., Feb. 23-24, 1953. J. L. Wells, P. O. Box 676, Kansas City, Mo., secretary.

Alabama Veterinary Medical Association. Annual meeting. Reich Hotel, Gadsden, Ala., March 19-21, 1953. M. K. Heath, Alabama Polytechnic Institute, Auburn, Ala., secretary.

Oklahoma conference for veterinarians. School of Veterinary Medicine, Stillwater, Okla., May 11-12, 1953. D. M. Trotter, professor and head, Department of Veterinary Pathology, chairman.

American Veterinary Medical Association. Annual meeting. Royal York Hotel, Toronto, Ont., July 20-23, 1953. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

(Continued on p. 30)



# SCIENCE GIVES NEW MEANING TO THE PHRASE: "A DOG'S LIFE"



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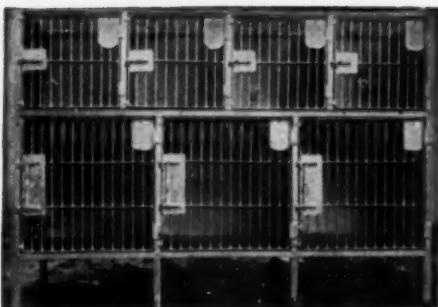


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**Regularly Scheduled Meetings**

Bay Counties Veterinary Medical Association, the second Tuesday of each month. Richard L. Stowe, 149 Otsego Ave., San Francisco, Calif., secretary.

Cedar Valley Veterinary Association, the second Monday of each month (except July and August) at Black's Tea Room, Waterloo. F. E. Brutsman, Traer, Iowa, secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. W. E. Smith, 516 Oatman, Sanger, Calif., secretary.

Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel in Greensboro. Mr. Earl D. Adams, Greensboro, N. Car., secretary.

Chicago Veterinary Medical Association, the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.

Coastal Bend Veterinary Association (Texas), the second Wednesday of each month. J. E. Hoban, 4301 S. Port Ave., Corpus Christi, Texas, secretary.

Coon Valley Veterinary Association, the second Wednesday of each month, September through May, at the Bradford Hotel, Storm Lake, Iowa. V. D. Ladwig, Sac City, Iowa, secretary.

Cuyahoga County (Cleveland, Ohio) Veterinary Medical Association, the first Wednesday of each month—September through May (except January)—at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. Roger W. Grundish, 4217 Mayfield Road, South Euclid 21, Ohio, secretary.

East Bay Veterinary Medical Association, bi-monthly, the fourth Wednesday. Robert Clemens, 23352 Orchard, Hayward, Calif., secretary.

Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Florida, North-East Florida Veterinary Medical Association, the second Thursday of each month, time and place specified monthly. J. O. Whiddon, 829 San Marco Blvd., Jacksonville, Fla.

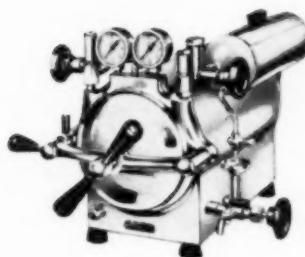
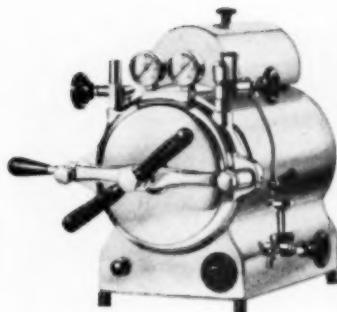
Greater St. Louis Veterinary Medical Association. Ralston-Purina Research Building, St. Louis, Mo., the first Friday in February, April, June, and November. George A. Franz, 3667a Marcelline Terrace, St. Louis, Mo., secretary.

Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month.

(Continued on p. 32)

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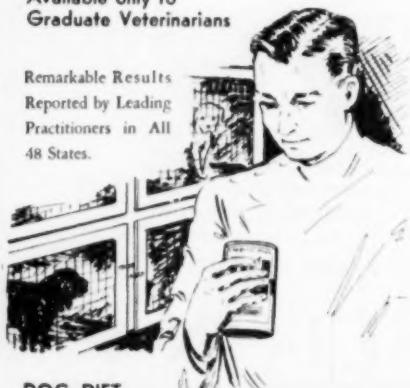
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KANSAS

(COMING MEETINGS—continued from p. 30)

Edward Lepon, Houston, Texas, secretary-treasurer.

Illinois Valley Veterinary Medical Association, the second Sunday evening of even-numbered months at the Jefferson Hotel, Peoria, Ill. S. M. McCully, Lacon, Ill., secretary.

Indiana Tenth District Veterinary Medical Association, third Thursday of each month. L. A. Snider, New Palestine, Ind., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month, in Louisville or within a radius of 50 miles. E. M. Lang, 716 E. Broadway, Louisville, Ky., secretary.

Kansas City Small Animal Hospital Association, the first Monday of each month, at the Hotel Continental. T. M. Eagle, Parkville, Route 2, Mo., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month, in the Hotel Continental, 11th and Baltimore, Kansas City, Mo. K. M. Curtis, 70 Central Ave., Kansas City 18, Kan., secretary.

Kern County Veterinary Medical Association, the first Thursday of each month. Richard A. Stiern, 17 Niles St., Bakersfield, Calif., secretary.

Keystone Veterinary Medical Association, the Philadelphia County Medical Society Building, 301 S. 21st Street, Philadelphia, Pa., on the fourth Wednesday of each month. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., secretary.

Kyowa Veterinary Medical Association, the second Thursday of each month in the Hotel Prichard, Huntington, W. Va., at 8:30 p.m. Karl Mayer, 1531 Fourth Ave., Huntington, W. Va., secretary.

Maricopa County Veterinary Association, the second Tuesday of each month. Charles J. Prchal, 1722 East Almeria Road, Phoenix, Ariz., secretary.

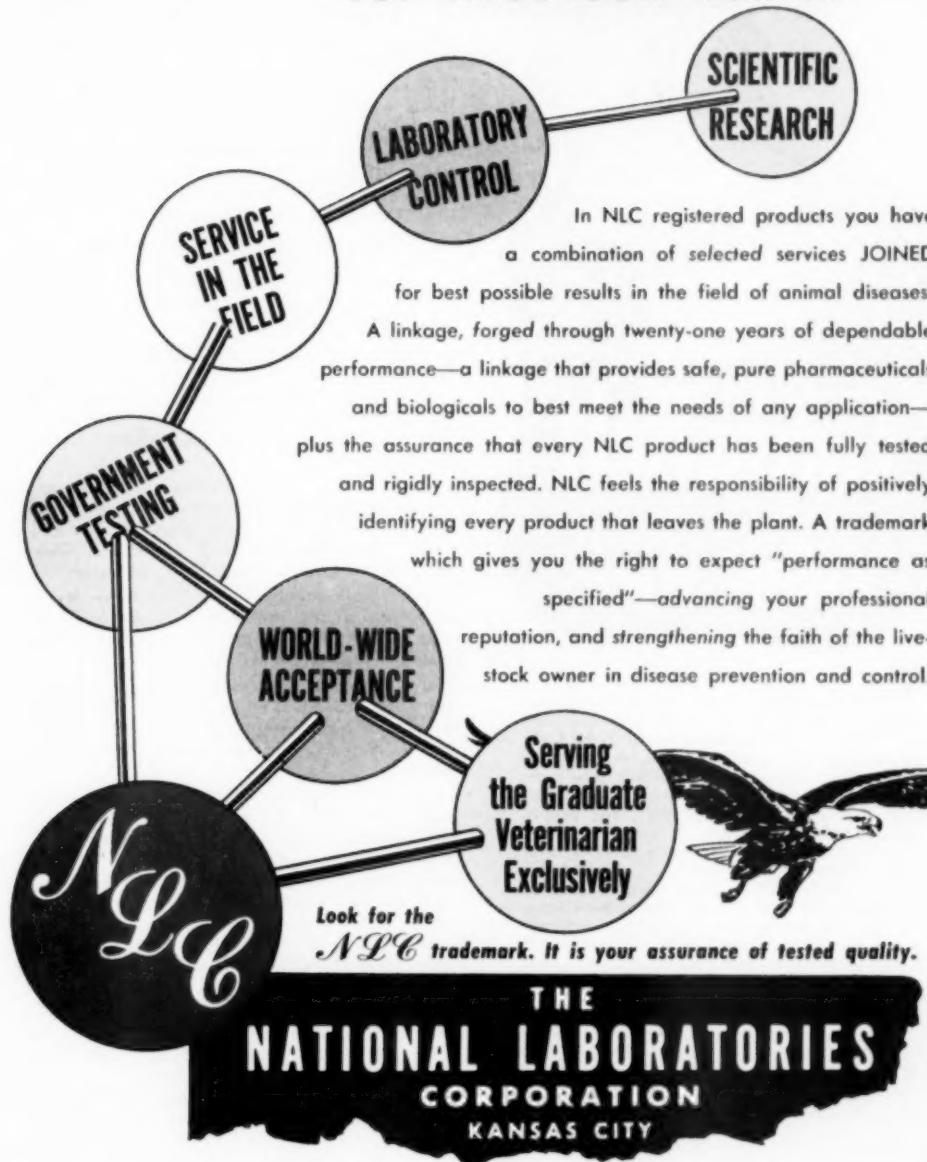
Metropolitan New Jersey Veterinary Medical Association, the third Wednesday evening of each month from September through May, at the Academy of Medicine of Northern New Jersey, 91 Lincoln Park South, Newark, N. J. Myron S. Arlein, 2172 Millburn Ave., Maplewood, N. J., secretary.

Michiana Veterinary Medical Association, the second Thursday of each month, at Hotel LaSalle, South Bend, Ind. Bruce Hostrawser, 2621 Mishawaka Ave., South Bend, Ind., secretary.

Michigan, Southeastern Veterinary Medical Society. Herman Kiefer Hospital, Detroit, Mich., the second Wednesday of each month from October through May.

(Continued on p. 34)

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(COMING MEETINGS—continued from p. 32)

Mid-Coast Veterinary Medical Association, the first Thursday of every even month. C. Edward Taylor, 2146 S. Broad St., San Luis Obispo, Calif., secretary.

Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humboldt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.

Mobile-Baldwin Veterinary Medical Association, the first Tuesday of each month at the Hotel Admiral Simmes, Mobile, Ala. C. Eric Kennedy, Mobile, Ala., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. C. Edward Taylor, 2146 South Broad St., San Luis Obispo, Calif., secretary.

New Castle County Veterinary Society, the second Wednesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. Harold Roberts, Paper Mill Road, Newark R3, Del., secretary.

New York City, Veterinary Medical Association of, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63 St., New York City. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.

Northern New Jersey Veterinary Association, the fourth Tuesday evening from September through June, at the Casa Mana Restaurant, Cedar Lane, Teaneck, N. J. Robert R. Shomer, 1680 Teaneck Road, N. J., secretary.

Northern San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. Tom Hagan, Gen. Del., Escalon, Calif., secretary.

Oklahoma County Veterinary Medical Association, the second Wednesday of every month except July and August. W. C. Schilb, 4312 N. W. 23rd St., Oklahoma City, Okla., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. Clark Stillinger, 1742 E. Holt Ave., Pomona, Calif., secretary.

Orange County Veterinary Medical Association, bi-monthly. Donald E. Lind, 2643 N. Main, Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. P. H. Hand, Box 1035, Millbrae, Calif., secretary.

Piedmont Veterinary Medical Association, the last Friday of each month at 7:00 p.m. in Mull's Motel in Hickory, N. Car. C. N. Cope land, Hickory, N. Car., secretary.

Pima County (Arizona) Veterinary Medical Association, the third Wednesday of each month,

(Continued on p. 36)

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(COMING MEETINGS—continued from p. 34)

in Tucson. R. W. Adami, 2103 S. 6th Ave., Tucson, Ariz., resident secretary.

Portland (Oregon) Veterinary Medical Association, the second Tuesday of each month, in the Auditorium of the Upjohn Company. Robert L. Hawley, 1001 N. W. Fourteenth Ave., Portland, Ore., secretary.

Redwood Empire Veterinary Medical Association, the third Thursday of each month. H. M. Strandberg, 203 D St., Petaluma, Calif., secretary.

Roanoke-Tar (N. Car.) Veterinary Medical Association, the first Friday of each month, time and place specified monthly. B. H. Brow, Weldon, N. Car., secretary.

Sacramento Valley Veterinary Medical Association, the second Wednesday of each month. S. M. Foster, 430 College, Woodland, Calif., secretary.

Saginaw Valley Veterinary Medical Association, the last Wednesday of each month. H. W. Harper, Flint Health Department, Flint, Mich., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month. Warren J. Dedrick, 904 S. Lemon, El Cajon, Calif., secretary.

Santa Barbara-Ventura Counties Veterinary Medical Association, the second Friday of even months. Joe Ridgway, 1784 Thompson Blvd., Ventura, Calif., secretary.

Southern California Veterinary Medical Association, the third Wednesday of each month. R. W. Sprowl, 11756 San Vicente Blvd., Los Angeles 49, Calif., secretary.

South Florida Veterinary Society, the third Tuesday of each month, at the Seven Seas Restaurant, Miami, Fla. E. A. Majilton, 1092 N. E. 79th St., Miami, Fla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month, in Director's Parlor of the Brookside State Bank, Tulsa, Okla. John Carnes, Muskogee, Okla., secretary.

#### Foreign Meetings

Fifteenth International Veterinary Congress. Stockholm, Sweden, Aug. 9-15, 1953. Dr. L. de Blieck, Soestdijkseweg 113N, Bilthoven, Netherlands, secretary, Permanent Committee. (U. S. Committee: Dr. W. A. Hagan, N. Y. State Veterinary College, Ithaca, N. Y., chairman; Dr. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., secretary.)



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**WANTED**—veterinarian to assist in extensive mixed practice in Montana. Modern facilities, hospital. Salary and commission. Give complete, full particulars when applying. Address "Box C 16," c/o JOURNAL of the AVMA.

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(Continued on p. 44)

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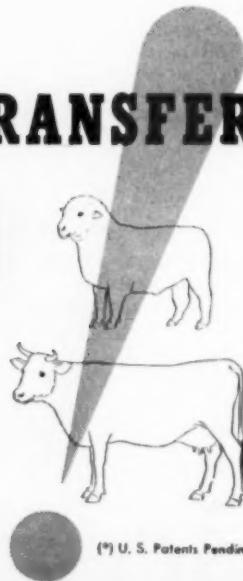
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*The Infectious Diseases of Domestic Animals: With Special Reference to Etiology, Diagnosis, and Biologic Therapy.* \$8.75. By W. A. Hagan and D. W. Bruner, Cornell University. 950 pp., 23 tables, 155 illus. 2nd ed., 1951.

*Fundamentals of the Histology of Domestic Animals.* \$8.75. By Alfred Trautmann (Hannover, Germany) and Josef Fiebiger (Vienna, Austria.) Translated and revised by Robert E. Habel, Cornell University, and Ernst L. Biberstein, D.V.M. 439 pp., 450 Illus. (43 in color), 1952.

*The Physiology of Domestic Animals.* \$7.50. By H. H. Dukes, Cornell University. 829 pp., 184 illus., 6th ed., 1947.

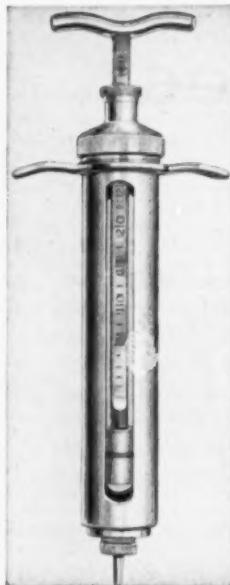
*Nutrition of the Dog.* \$3.50. By Clive M. McCay, Cornell University. 347 pp., 56 tables, 47 figs., 2nd ed., 1949.

*Complete information on titles will be furnished on request.*

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## Correspondence

Oct. 13, 1952

American Veterinary Medical Association  
Chicago, Ill.

I am building a small animal hospital and want to know if it is permissible according to the code of ethics to have a large neon sign at the parking entrance.

If this is not permissible, what would be? I plan on having no lettering on the building, just the sign. Also would the Aurora Veterinary Clinic as a name be permissible?

Would appreciate very much to hear in regard to this immediately.

Thanks for your kindness.

Oct. 20, 1952

Dear Doctor:

The committee wants you to know that they appreciate the compliment that you extend to them in seeking their advice on this subject.

The matter of signs has long been a subject of much debate and discussion as to the size and subject matter.

The AVMA Code of Ethics has this to say: *Paragraph 21.*—Display signs of reasonable size and dimensions on veterinary hospitals are not regarded as objectionable, provided they do not announce special services, such as bathing, plucking, clipping and x-ray work, which characterize the ways of a charlatan.

You state in your letter that you propose to erect a large sign, lettered in neon. I am sure that a large sign would be contrary to the interpretation of paragraph 21; however, the wording does leave one in doubt as to what is a reasonable sized sign. The Committee on Ethics will meet at my home on November 4, and this will be one of the subjects on the agenda and I feel sure that definite proportions for the size of signs will be worked out and a recommendation to the Executive Board of the AVMA will be made. If you can not wait until after the committee meets, will you send me a letter stating size of sign contemplated and I will send a letter to the other members for their comment and will send you their replies.

I trust this will not inconvenience you too much and assure you that this committee is ready and willing to render any assistance that it can. Please feel at liberty to write us.

Sincerely,  
Dr. J. A. Winkler, Chairman,  
AVMA Code of Ethics.

Nov. 12, 1952

Dear Editor:

It appears that farm publications continue to be more interested in new "discoveries" than they are in the veracity of certain reports.

*Country Gentleman* and *Capper's Farmer* both

(Continued on p. 42)

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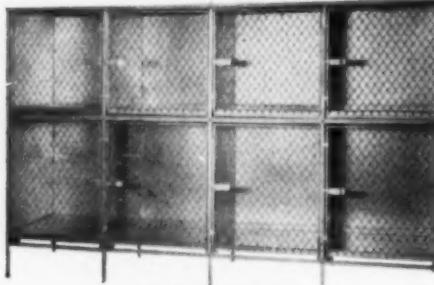
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*Valuable in all species for rapid replenishment of vitamins and minerals in debilitated animals.*

Containing in each pound: Vitamin A 120,000 units, Vitamin D 200,000 units, Thiamin 20 mg, Riboflavin 20 mg, Niacin 110 mg, Pantothenic acid 10 mg, Choline 800 mg, Folic acid 2.5 mg, Pyridoxine 1.2 mg, Vitamin C 200 mg, Vitamin B<sub>12</sub> 120 mcg, Biotin, Vitamin E.

2 teaspoonfuls daily per 25 pounds body weight is usually sufficient to provide minimum daily requirements of trace minerals plus other minerals and vitamins. For puppies, kittens, fox pups and toy dogs— $\frac{1}{4}$  to  $\frac{1}{2}$  teaspoonful daily is adequate.

For kennel use, may be mixed 1 or 2 pounds with each 100 pounds of regular feed.

1 pound	.65	doz 1 pound	6.50
25 lb. drum	9.50	100 lb. drum	35.00

## CURTS-FOLSE LABORATORIES

Select Pharmaceuticals for the  
Veterinary Profession since 1918

73 Central Avenue

Kansas City, Kansas

carried recent stories about a new test devised by a dairy scientist at Oregon State College. Mixing a sample of urine with benzonindophenol solution was supposed to change the color to green if the tested cow was pregnant. It was reported as being 91 per cent accurate when used on 136 cows in the Oregon State herd, was able to determine pregnancy a week after a cow was bred, and represented a simple, low-cost check that could be used by farmers.

It sounded good so I decided to try it. The following is a brief report of what happened:

- 1) I asked the local druggist to order a solution of benzonindophenol.
- 2) He called one of the largest drug supply houses in the midwest and was informed that they had never heard of the stuff.
- 3) I wrote the dairy scientist, enclosed a stamped envelope and asked where he had secured his benzonindophenol.

4) I then ordered 1,000 cc. from the company the scientist said he had secured it from but they also were unfamiliar with the product.

5) I then wrote a drug company which is probably the biggest in the Northwest, and they told me they did not know anything about benzonindophenol.

6) I again wrote the Oregon scientist enclosing a stamped envelope and told him what had happened. Just received the following reply:

Since publication of our pregnancy test for dairy cattle, considerable difficulty in the duplication and standardization of the dye used in the test has arisen. We, therefore, feel that until such time as the manufacturers of the dye have eliminated these difficulties, we should not issue any information with regard to the test.

I formerly made pregnancy examinations at thirty days but that was before I knew it couldn't be done before forty-five days. Do you suppose it will be all right if I go back to the old way of doing this work?

Worriedly yours,

**BROKEN TEETH** repaired in bottom clipper blades. Top and Bottom blades sharpened to match. You save money. Satisfaction guaranteed.

**HIGHLY SPECIALIZED** blade sharpening, sales and repairing service on Oster and Stewart Clippers — for over 17 years. Prompt Service.

*Mail to CLIPPER SERVICE  
OAK RIDGE N. J.*

**SHARPENED BLADES TESTED ON  
RABBIT FUR**

Oster, per set 75¢—Stewart,—\$1.00



# all this...

- A complete food. Rich in meat protein, vitamins, and minerals. Dogs love its sniff appeal, thrive on its complete nutrients.
- Guaranteed on a money-back basis. Select one or two dogs; test-feed for 30 days as thousands of professionals have. If you're not completely satisfied . . . you get your money back.
- Mixes easily to crumbly-moist texture. Doesn't stick to roof of dog's mouth.
- Contains chlorophyllin. Ends offensive odors of normal dogs . . . does *not* affect natural breeding habits.
- Thrifty! In 50, 25, 5, and 2 lb. sizes at your dealer's.

...and  
gifts,  
TOO!

These and 42 other valuable gifts . . . yours at no extra cost when you feed Ken-L-Meal or Ken-L-Biskit. Send now for your free copy of the new 1953 catalog of gift premiums. Write Ken-L-Products Division, The Quaker Oats Company, Chicago 54, Ill.

**Get valuable premiums**  
**—Feed Ken-L-Biskit**  
**or Ken-L-Meal**



Phinny-Walker  
Travel Clock



Delta Lantern

#### FREE CATALOG

The Quaker Oats Company  
Ken-L-Products Division  
Merchandise Mart Plaza, Chicago 54, Ill.

Gentlemen:

*Please send me your new 1953 Premium Catalog.*

Name.....

Address.....

City..... Zone..... State.....

**"Water-Proof"**  
**5 COMPARTMENT STALLS**  
**\$179.90**



**WATER-PROOF CONSTRUCTION  
HEAVILY GALVANIZED SHEETS**

**NO EXTRA CHARGE!**

Bottoms are water-proof trays with  $\frac{1}{2}$ " turned up edges, heavily soldered together. Braced, aluminum painted.  $\frac{1}{2}$ " angle iron frames. Door frames 1" O. D. pipe. Dog proof mesh filler welded to frame. All sheets heavily galvanized.

**Completely Assembled. Satisfaction Guaranteed.**  
**SIZES:** 3 upper stalls 24" x 24" x 28" deep.  
 2 lower stalls 36" x 36" x 28" deep.  
 Overall size: 6' wide x 5'6" high x 28 $\frac{1}{2}$ " deep.  
 Stalls Stand 6 in. off Floor.



**KENNEL RUNS**

*The low cost will surprise you!*

Ford DOUBLE FRAME Panel Runs insure SAFETY for your dogs. Chain link fabric is rust resistant, cannot be spread; permanently locked by INNER BAR FRAME. NO TIE WIRES TO RUST. Clamp together. No bolt holes to match. Portable or permanent construction.

Made in sizes to fit your requirements.  
 4, 5, and 6 ft. heights. Lengths 2 to  
 14 ft. panels.

**WRITE FOR LITERATURE AND PRICES**

**Kennel Runs — Pup Pens — Stalls and Cages  
Ornamental and Miscellaneous Iron.**

**FORD FENCE CO., Inc.**  
 6542 Westfield Boulevard  
 INDIANAPOLIS 20, INDIANA

(CLASSIFIED ADS—continued from p. 38)

discriminating clientele demands. Recently built hospital with complete facilities for small and large animal surgery. Address "Box Z 1," c/o JOURNAL of the AVMA.

**WANTED VETERINARIAN**—experienced in small animal practice. State full qualifications in first letter. Replies confidential. Dr. James E. Patterson, 31542 W. Nine Mile Rd., Farmington, Mich.

**WANTED**—recent graduate to work in small animal hospital in South Florida. State age, salary expected. Address, Dr. J. Eric Anderson, Rt. 1, Box 16-A, Delray Beach, Florida.

**WANTED**—veterinarian as assistant. Predominately small animals. Excellent clientele. Salary commensurate with willingness and ability. Dr. R. A. Self Veterinary Hospital, 800 N. Oak Cliff Blvd., Dallas, Texas.

**WANTED**—experienced veterinarian able to operate small animal hospital. Attractive salary and commission. Must have Maryland license. Small apartment available. Address "Box C 20," c/o JOURNAL of the AVMA.

**Wanted—Positions**

**POSITION WANTED**—graduate of AVMA-approved school, 1950, veteran, draft exempt, single, 31. Desires position on staff of busy progressive small animal hospital with opportunity for future. Experienced, conscientious, capable. South, Southwest, or California preferred. Address "Box C 3," c/o JOURNAL of the AVMA.

**WANTED**—association with Indiana or Midwest large animal practitioner with possibility of future partnership. Michigan State graduate, BS and DVM with some regulatory, Army, and large animal experience. Married, 30 years old, draft exempt. Address "Box C 4," c/o JOURNAL of the AVMA.

**WANTED**—position as assistant to veterinarian in small animal practice or would take over practice for a draftee. Address "Box C 7," c/o JOURNAL of the AVMA.

**POSITION WANTED**—German graduated veterinarian, 33, married, experience in mixed practice and bacteriological work in Germany, and small animal practice in United States. Available after California State Board examination in February, 1953. Address "Box C 9," c/o JOURNAL of the AVMA.

**WANTED**—senior student in good class standing, to graduate in six months, interested in working with a busy practitioner following graduation. Address "Box C 13," c/o JOURNAL of the AVMA.

**ASSISTANTSHIP WANTED**—in busy general practice. Recent graduate AVMA-approved school. Prefer Middlewest, especially Wisconsin, but will consider any locality. Excellent background in dairy and animal husbandry. Draft exempt, not afraid of hard work, excellent references. Address "Box C 11," c/o JOURNAL of the AVMA.

(Continued on p. 46)

**Day after day your professional advice  
is asked on a variety of subjects—**

## **How many things can you recommend with such confidence?**

Perhaps you never stopped to think how a name like *Swift* can give you, without a second thought, an almost instinctive assurance of high quality.

And rightly so. In dog foods, for example, what better guarantee can you have of their goodness, their sound scientific basis, their tested effectiveness than the *Swift* label? For 20 years, *Swift*'s laboratories and kennels have pioneered in research—have led the way to higher standards of manufacture—have carried on such continuous feeding tests on generations of dogs as to completely eliminate "guesswork" from the science of animal feeding. Truly, nobody makes dog foods like *Swift* makes Pard and Pard Meal.

**SWIFT & COMPANY**

**PARD**—*Swift*'s famous canned dog food—is a complete diet. A dog needs nothing more to keep him in perfect health. Since its introduction in 1932, more dogs in more homes have been fed more Pard than any other commercial dog food.



*In 2 and  
5 lb. cartons —  
25 and 50 lb. bags*

**SWIFT'S PARD MEAL**—is a brand new, complete, dry-type dog food. Homogenized, with extra amounts of rich meat fat added for tastiness, super-energy, fuller nutrition. Contains Aureomycin to keep a dog "on feed," promote good appetite.

SYMBOL OF  QUALITY

### PHENOTHIAZINE

#### REGULAR N. F. or DRENCH TYPE

1 lb. can (12 to case)	\$ .82 per lb.
5 lb. can	.79 per lb.
10 lb. drum	.78 per lb.
25 lb. drum	.76 per lb.
150 lb. drum	.70 per lb.

#### PHEN O BOLES®

12½ gram Bolus—Box of 25	\$1.50
12½ gram Bolus—Box of 100	5.15
2 gram Tablet—Bottle of 100	.98

#### NUTRITIONAL

##### CALF CAPSULES

Vitamin A	5000 USP Units
Vitamin C	5000 USP Units
Vitamin D	500 USP Units
Niacin	50 mg.

Bottle of 100	\$ 2.35
Bottle of 500	10.75

##### OCTO-MINS — A, C, D, & B Complex — 8 Vitamin Capsule

Formula on request.

Bottle of 100	\$ 1.35
Bottle of 1000	11.00

##### CALCIUM GLUCONATE USP POWDER

5 lb. can	\$ .91 per lb.
10 lb. drum	.88 per lb.
25 lb. drum	.85 per lb.

##### DEXTROSE USP POWDER

10 lb. drum	\$ .40 per lb.
25 lb. drum	.35 per lb.
100 lb. drum	.29 per lb.

##### UREA USP CRYSTALS

10 lb. drum	\$ .28 per lb.
25 lb. drum	.24 per lb.

##### SULFONAMIDES

##### SULFANILAMIDE USP POWDER

1 lb. bottle	\$1.80 per lb.
10 lb. drum	1.70 per lb.
25 lb. drum	1.65 per lb.
100 lb. drum	1.55 per lb.

##### SULFATHIAZOLE SODIUM USP POWDER

1 lb. bottle	\$4.20 per lb.
5 lb. bottle	4.10 per lb.

##### SULFAPYRIDINE SODIUM POWDER

1 lb. bottle	\$10.00 per lb.
5 lb. bottle	9.75 per lb.

Write for Complete Price List

Terms 1% 10 days net 30 F.O.B. Chicago

Freight Allowed on Shipments of 100 Lbs. or More  
Rocky Mountain and Pacific Coast Prices Slightly Higher

Prices Subject to Change Without Notice

**AMERICAN CHEMICAL CO.**

1112 West 37th Street, Chicago 9, Illinois

(CLASSIFIED ADS—continued from p. 44)

**POSITION WANTED**—graduate AVMA-approved school, presently employed regulatory work, desires position as associate leading to full partnership. Experience, mixed practice. Will consider two-year lease of hospital and practice of veterinarian going into military service on basis of nominal rent plus percentage of gross profit. Address "Box C 18," c/o JOURNAL of the AVMA.

#### Wanted—Practices

**WANTED TO BUY OR LEASE**—with option to buy, active small animal hospital in Texas. Give complete details. Have financial means for worthwhile investment. Address "Box C 5," c/o JOURNAL of the AVMA.

**WANTED TO BUY OR LEASE**—busy one man small animal hospital in California. Experienced, California license. State details in first letter. Address "Box C 15," c/o JOURNAL of the AVMA.

**WANTED TO PURCHASE**—a veterinary practice in the Pacific coast area. Will be able to make substantial down payment. Will also work toward future ownership or partnership. Address "Box C 17," c/o JOURNAL of the AVMA.

**WANTED TO BUY OR LEASE**—small animal hospital or mixed practice in Connecticut, Massachusetts, Ohio, Indiana, or Illinois. Substantial down payment. Experienced. Excellent references. Address "Box C 19," c/o JOURNAL of the AVMA.

#### Wanted to Buy

**WANTED TO BUY**—senior veterinary student desires to purchase second hand large animal instruments and equipment. Will purchase single articles or complete stock. Address "Box C 12," c/o JOURNAL of the AVMA.

#### For Sale or Lease—Practices

**FOR SALE**—modern residence, veterinary hospital with apartment above. Established New England practice 75% small, 25% large approximately. Owner moving. \$36,000 including real estate and practice. Address "Box C 10," c/o JOURNAL of the AVMA.

**FOR SALE**—Well-established small animal practice in one of the choice spots in central coastal California. Practice built on careful work. Is not recommended for an inexperienced man, but would be a pleasant practice for the right man. \$15,000 includes all equipment, normal operating inventory.

(Continued on p. 52)

#### WHITE'S

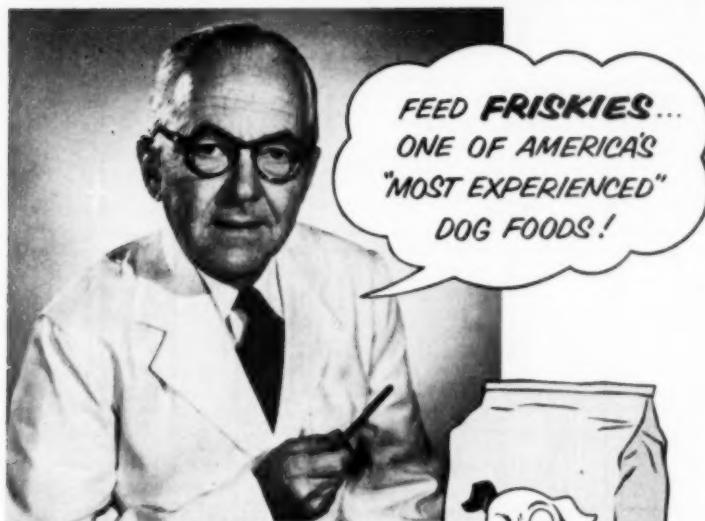
A new textbook for TEACHERS, STUDENTS and PRACTITIONERS.

#### ANIMAL CASTRATION

Price \$7.50

For sale by book dealers, also by the Author, George Ransom White, M.D., D.V.M., P. O. Box 901, Nashville, Tennessee.

## The **True-Type** meal -used successfully for generations of dogs!



CERTAINLY no one who raises dogs wants to risk feeding untried dog foods.

That's why so many professionals rely on Friskies—the true-type meal with a 21-year record of success! They know that Friskies has proved itself on *generations* of dogs of all sizes and types.

**EASIER TO FEED!** Friskies quickly absorbs water... which combines with its 19 nourishing ingredients to give Friskies a "meaty" taste and flavor dogs love!

**START TODAY**—give your dogs the nutritional benefits of Friskies, the 21-year-tested "Meal of Champions."



**FRISKIES CUBES**... crunchy, bite-sized morsels in the same famous formula. Feed as it. Nothing to add—not even water!

**50 YEARS' RESEARCH BEHIND EVERY BAG OF FRISKIES!** The famous Friskies formula is based on Albers 50 years experience in animal nutrition. At the Friskies Research Kennels, generations of healthy, happy dogs have been raised on Friskies alone.



MEAL AND CUBES IN  
2, 5, 10, 25 AND 50-LB. SIZES.

**KEEP YOUR DOG**

**FRISKY WITH**  
**Friskies**

Albers Milling Company  
A Division of Carnation Company



1. The Barclay	6. St. Regis	A. Baseball Stadium	E. University of
2. Frontenac Arms	7. Walker House	B. Casa Loma	Toronto
3. King Edward	8. Waverley	C. Royal Ontario	F. Parliament Buildings
4. Prince George	9. Westminster	Museum	G. Art Gallery of
5. Royal York	10. Park Plaza	D. Hart House	Toronto
	11. Selby		H. Union Station

# HOTEL RESERVATIONS — TORONTO CONVENTION

Ninetieth Annual AVMA Meeting, July 20-23, 1953

All requests for hotel accommodations will be handled by a Housing Bureau in cooperation with the Committee on Local Arrangements. The Bureau will clear all requests and confirm reservations.

## HOTELS AND RATES

HOTEL	SINGLE	DOUBLE	TWIN BEDS
1. The Barclay	\$4.50 up	\$6.00-8.00 up	\$7.50-8.50 up
2. Frontenac Arms	\$6.00	\$8.00	\$8.00 up
3. King Edward	\$5.50 up	\$9.50 up	\$10.25 up
4. Prince George	\$4.50 up	\$6.50 up	\$6.50 up
5. Royal York	\$7.50 up	\$11.50 up	\$11.50 up
6. St. Regis	\$5.50-6.00	\$7.50 & 8.50	\$8.50 up
7. Walker House	\$4.00	\$7.00	\$7.00
8. Waverley	\$3.50 up	\$5.50-7.50	\$7.00
9. Westminster	\$5.00 up	\$6.00 up	\$6.00 up
10. Park Plaza	\$7.00-9.00		\$10.00
11. Selby	\$3.50	\$5.00-6.00	

### Motor Hotels (Motels)

	Single	Double
12. The Guild Inn (5 mi. east of Toronto) .....	\$6.50	\$9.00
13. Alda Motel (about 10 mi. east of Toronto) .....		\$7.00
14. Lido Motel (about 10 mi. east of Toronto) .....		\$8.00
15. Sunnyside Motor Hotel (Lake Shore Rd. at western entrance to Toronto) .....		\$9.00

Cut Off Here

## HOTEL RESERVATION FORM — AVMA CONVENTION

To: Housing Bureau, Toronto Convention & Tourist Assn., Date .....  
30 Bloor Street, West, Toronto 5, Ontario

Please make reservations indicated below:

(Three Choices MUST Be Shown)

First choice hotel .....

Second choice hotel .....

Third choice hotel .....

Arriving on (date) ..... at ..... a.m. ..... p.m.

Leaving on (date) ..... at ..... a.m. ..... p.m.

Accommodations and Rates Per Day Desired:

Single room at \$ .....  
 Double-bed room at \$ .....  
 Twin-bed room at \$ .....  
 Suite\* at .....  
.....

Room will be occupied by (attach list of additional names if necessary). Do not make reservations for others without prior arrangements with them.

Name ..... City and State or Province .....

Name ..... City and State or Province .....

Your Name (print or type) .....

Street Address .....

City ..... State or Province .....

\*Those desiring suites of rooms should send the Housing Bureau complete information as to accommodations and rates desired.

# two SQUIBB products

## **PROCAINE PENICILLIN G IN OIL VETERINARY**

## **CRYSTICILLIN 300 A. S. VETERINARY**

### **PROCAINE PENICILLIN G IN OIL SQUIBB — with Aluminum Monostearate**

A sterile liquid suspension of the crystalline micronized procaine salt of penicillin G in sesame oil, stabilized with 2 per cent aluminum monostearate.

Produces prolonged blood levels due to the slow absorption of the procaine salt of penicillin G.

Supplied in 10 cc. vials containing 3,000,000 units. Expiration date: 24 months. No refrigeration required.

### **CRYSTICILLIN 300 A. S.—procaine penicillin G in aqueous suspension**

Procaine penicillin G in aqueous suspension ready for injection, containing the equivalent of 300,000 units of penicillin in each cc.

Crysticillin 300 A.S. is ready to inject without sterilization or aqueous reconstitution.

Supplied in 10 cc. vials containing 3,000,000 units. Expiration date: 12 months. Should be stored below 15° C. (59° F.).

# SQUIBB

# for PENICILLIN THERAPY...



These two Squibb penicillin products—Procaine Penicillin in Oil, and Crysticillin 300 A.S.—are available from your favorite supply house.

For further information about Squibb formulations of penicillin—in oil or aqueous suspension—address E. R. Squibb & Sons, *Veterinary and Animal Feeding Products Division*, Dept. JAV-1, 745 Fifth Avenue, New York 22, N. Y.

"Crysticillin" is a trademark

A NAME YOU CAN TRUST



**MacALLAN EAR-CROPPING FORMS**

Provides an accurate pattern against which to cut with knife or razor blade. Fits firmly, cannot move or slip when clamped into position. Made of non-rusting, light, cast aluminum, highly polished. Lasts a lifetime with minimum care. Simplicity of design and construction reduces possibility of breakage or mechanical failure. Forms immediately available to provide distinctive marking of these breeds:

B boxer — postpaid \$15.00  
Boston Terrier — postpaid \$15.00  
Great Dane — postpaid \$15.00  
Dobberman — postpaid \$15.00  
Set of above four — postpaid \$50.00

These patented "championship" forms are patterned after markings of winners of top honors in show competition. Forms for other breeds made on special order. Sold to veterinarian only. Send check or money order.



**MacALLAN LABORATORIES**  
Route No. 2, Box 420 | Lansing, Michigan

### The AVMA Will Pay 25 Cents Plus Postage for Each Copy of the Following:

- **JOURNAL OF THE AVMA—**  
**Jan., 1943, Jan., July, Aug., Sept., Oct., 1951 and Feb., Aug., 1952**
- **AMERICAN JOURNAL OF VETERINARY RESEARCH—**  
**Jan., 1949, April, 1950, April, 1951**

**AMERICAN VETERINARY MEDICAL ASSOCIATION**  
**600 S. Michigan Ave.**  
**Chicago 5, Ill.**

(CLASSIFIED ADS — continued from p. 46)

and long lease on buildings. Address "Box B 5," c/o JOURNAL of the AVMA.

**FOR SALE OR LEASE**—beautiful new home and clinic. Mixed practice; expansion unlimited. Southern California resort town. Terms. Address "Box B 11," c/o JOURNAL of the AVMA.

**FOR SALE OR LEASE**—with option to buy. Southern California small animal hospital now at one man capacity. No real estate. Low price lenient terms. Address "Box W 17," c/o JOURNAL of the AVMA.

**FOR SALE**—large city Northeast Pennsylvania, practice consisting small animals and inspection work. Much large animal practice available if desired. All equipment including x-ray. Purchase with or without real estate. Excellent opportunity at a very reasonable price. Available immediately. Address "Box C 14," c/o JOURNAL of the AVMA.

**FOR SALE OR LEASE**—with option to buy, modern, fully equipped small animal hospital. Located in fast growing community of Maryland. Address "Box C 21," c/o JOURNAL of the AVMA.

**FOR SALE**—former M.D.'s office well suited small animal hospital. No veterinarian in area. Wonderful opportunity! Write to J. C. Penner, 248 Central, Shafter, Calif.

**FOR LEASE**—recall to service offers my fully equipped, modern, efficient 42-kennel small animal hospital and accompanying three-bedroom apartment with landscaped ground for immediate two-year lease and possible future interests in the best and growing section of Seattle, Wash. Can guarantee very remunerative proposition. Unequalled opportunity for the right man. State full particulars in first letter. Must have good references, small animal experience, right personality, and be service-exempt. Contact me immediately: Dr. William H. Sudduth, 9505 35th Northeast, Seattle 5, Wash.

**FOR SALE**—well-established small animal practice in one of the choice spots in central coastal California. Practice built on careful work. Is not recommended for an inexperienced man, but would be a pleasant practice for the right man. \$15,000 includes all equipment, normal operating inventory, and long lease on buildings. Address "Box B 5," c/o JOURNAL of the AVMA.

**FOR SALE**—established Texas dairy practice. Net \$7,500. New hospital and quarters, reasonable lease. Drugs and equipment \$3,000. Owner drafted. Address "Box C 22," c/o JOURNAL of the AVMA.

**FOR SALE**—small animal hospital. Little capital required. Address "Box C 23," c/o JOURNAL of the AVMA.

#### Lost

**FIFTY DOLLARS REWARD**—for information leading to return of Burmese Cat. Female, spayed, nine years old. Brown, darker brown face, ears, feet, and tail. Two small scars on forehead; may have scar in cornea of eye. Phone Oregon State Police in Klamath Falls, Ore.

(Continued on p. 54)

## A MESSAGE OF IMPORTANCE To Veterinarians . . . From a Veterinarian

Mastitis is a herd problem best handled by close co-operation between the herd owner and his veterinarian, yet more than 60 per cent of herd owners now by-pass the veterinarian.

While a veterinarian may not be available to all farmers, most home treatment is caused by the owner's desire to save expense and his preference of other sources of supply.

If this trend toward home treatment continues, it can be a serious threat to the practice of veterinary medicine.

As originators of the penicillin bougie and manufacturers of Mastics for the treatment of mastitis, we have a large stake in veterinary medicine

Our fixed policy has always been "sold through the veterinarian only," and we hope to be able to continue with this policy. However, we must accept human nature as it is and co-operate to the best of our ability.

Since delay in treating mastitis may cause irreparable loss, most herd owners want effective treatment they can use themselves at once. But the veterinarian is best qualified to instruct herd owners how and when to use medication, also, under what circumstances a veterinarian should be called.

We think the veterinarian has an opportunity to be of service to the large group of herd owners who now by-pass him. We are trying to find ways to co-operate with this group and show them that we as veterinarians have something they need. Our present advertising in farm papers, as shown at the right, is directed along this line.

F. E. MARTIN, V. M. D.  
The Martin Laboratories  
West Chester, Pennsylvania

• Write for Veterinarians' Price List

**MASTITIS CAN BE CONTROLLED**

Stop losing money on non-salable milk!  
Send today for this valuable booklet

**PRACTICAL MASTITIS CONTROL**

Gives pointers on treatment and prevention,  
how to check chronic infections, what to do  
during drying-off

SENT TO YOU **FREE** BY THE MAKERS OF

**MASTICS®**  
THE ORIGINAL UDDER BOUGIE



FOR **FASTER**  
**SAFER** **SURER**  
**MASTITIS CONTROL**

Mastics P & S—with 50,000 units of penicillin and 50,000 micrograms of streptomycin in each bougie. Boxes of 25, \$8.50.  
Regular Mastics—now made with 50,000 units of penicillin per bougie. Boxes of 25, \$6.00.  
High Potency Mastics—100,000 units of penicillin per bougie. Boxes of 25, \$8.50.

Sold only by veterinarians.

**FREE MAIL THIS COUPON TODAY**

Please send me the free booklet,  
Practical Mastitis Control

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

**THE MARTIN LABORATORIES**  
P. O. Box 532 West Chester, Penna.

**Miscellaneous**

Summer vacation camp for July or August, 1953. Maine, beautiful location on lake, private. Owned by a veterinarian. Early reservation necessary. Address "Box C 6," c/o JOURNAL of the AVMA.

**Clipper Blade Sharpening**

Have your Clipper Blades sharpened by an expert with 28 years of practical factory training. We know how your blades must be ground to cut like new. Also clipper repairing. All work guaranteed to satisfy you or money back. Now serving veterinary colleges, and over 500 satisfied veterinarians. Why not you? 24-hour service. We ship insured prepaid. Avoid C.O.D. charges; enclose 75¢ for each set with blades. We are headquarters for Sunbeam Stewart labor-saving equipment, and the new Allover small animal clippers. Write for information on Stewart and Allover quality clippers and products. Service Grinding and Supply Co., 903 Chicago St., Racine, Wis.

**ARTIFICIAL INSEMINATION INSTRUMENTS**—Standard and custom-made essential equipment and supplies. Sulfacetate buffer tablets. Disposable plastic inseminating tubes, sterilized, \$1.00 per package of twenty. Address Breeder's Equipment Co., Flourtown, Pa.

**MEDICAL FIELD OPERATING LAMPS**, new portable, run on any current. Wilmot Castle and American Sterilizer. \$25.00 FOB Orangeburg. Also

**DE LUXE CAGES**

**IMPROVED 7-CAGE DE LUXE DRAIN UNIT**  
Also Available in Removable Tray Style, or  
Plain, Flat Floor Style

Note new style Bar Doors — Heavier ( $\frac{3}{8}$ ") rods — eliminates brace bar in center. Door frames, top and bottom, made of 1 inch tubes; water runs off instead of remaining on door frame.

**IMPROVED DOG DRYER WITH  
ENTIRELY TRANSPARENT DOORS**

Write for NEW cage booklet; also dryer folder

The 1952 price list is now available

**Baltimore Wire & Iron Works**  
514 N. Jasper Street Baltimore 1, Maryland

nylon rope. Ask for catalog. Sailors Surplus, Orangeburg 19, N.Y.

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